UNIVERSAL
LIBRARY

OU_158155

UNIVERSAL
LIBRARY

COSTS AND COST ACCOUNTS

BY

H. O. HORTON, F.C.A.

AND

R. R. MASON, F.I.A.C., A.C.I.S.

LONDON
SIR ISAAC PITMAN & SONS, LTD.

SIR ISAAC PITMAN & SONS, LTD.
PITMAN HOUSE, PARKER STREET, KINGSWAY, LONDON, W.C.2
THE PITMAN PRESS, BATH
PITMAN HOUSE, LITTLE COLLINS STREET, MELBOURNE
UNITEERS BUILDING, RIVER VALLEY ROAD, SINGAPORE
27 BECKETTS BUILDINGS, PRESIDENT STREET, JOHANNESBURG

ASSOCIATED COMPANIES

PITMAN PUBLISHING CORPORATION
2 WEST 45TH STREET, NEW YORK
205 WEST MONROE STREET, CHICAGO

SIR ISAAC PITMAN & SONS (CANADA), LTD.
(INCORPORATING THE COMMERCIAL TEXT BOOK COMPANY)
PITMAN HOUSE, 381-383 CHURCH STREET, TORONTO

BOOK
PRODUCTION
WAR ECONOMY
STANDARD

THE PAPER AND BINDING OF
THIS BOOK CONFORM TO THE
AUTHORIZED ECONOMY STANDARDS

MADE IN GREAT BRITAIN AT THE PITMAN PRESS, BATH
D6—(B 175)

PREFACE

In dealing with the subject throughout on general and practical lines, the Authors have adopted what they feel is the logical and most useful presentation of the subject of Costing and Cost Accounting.

The need for a complete link-up of Costing records with the double-entry details of the financial system is emphasized.

The full incorporation of the Costing figures in the double-entry system makes inevitable a closer relationship between the Cost and Financial Departments.

It is maintained that where a complete scheme of Cost record is in being, the double-entry machinery should so deal with the Cost figures that from *their* details are prepared the periodic Manufacturing, Trading and Profit and Loss and similar Accounts.

While the examination student should find in this work all the material necessary for his study of the subject, it is felt that the practical treatment given to the various sections will render the book of use also to the non-examination student and to the practitioner.

H. O. HORTON
R. R. MASON

CONTENTS

CHAP. PAGE

PREFACE v

I. THE TRADING AND PROFIT AND LOSS ACCOUNT 1

II. THE PURPOSE OF COSTING 8

III. THE COMPONENTS OF COST 14

IV. THE RECORDING AND CONTROL OF MATERIALS 25

V. LABOUR COSTS 45

VI. ASSEMBLY OF MATERIAL AND LABOUR DETAILS 70

VII. THE GENERAL NATURE OF ONCOST . . . 95

VIII. ONCOST—METHODS OF RECOVERY. . . . 133

IX. MAKING USE OF ONCOST RECORDS . . . 155

X. BUDGETS AND BUDGETARY CONTROL . . . 165

XI. PRESENTATION OF COST RESULTS 180

XII. THE COST OFFICE 190

XIII. COSTING AS PART OF THE DOUBLE ENTRY . 196

XIV. THE USE OF GRAPHS AND CHARTS . . . 222

XV. PLANT AND PATTERNS; INTEREST ON CAPITAL EMPLOYED 229

XVI. A MANUFACTURING ORGANIZATION . . . 238

XVII. COSTING AND INCOME TAX 243

XVIII. THE AUDITOR AND COSTING 255

XIX MECHANICAL AIDS TO COSTING 262

XX. THE INCORPORATION OF COST FIGURES IN THE DOUBLE ENTRY SYSTEM 269

GLOSSARY 299

QUESTIONS SET AT PUBLIC EXAMINATIONS . 305

SOME USEFUL CONSTANTS AND GENERAL MEMORANDA 313

INDEX 317

INSETS

WAGES SHEET . . . . *bet.* 56 and 57

PLANT REGISTER. . . . *bet.* 228 and 229

COSTS AND COST ACCOUNTS

CHAPTER I

THE TRADING AND PROFIT AND LOSS ACCOUNT

THE student will be familiar with the usual form of Trading and Profit and Loss Account of a manufacturing concern. On the next page is a fair example in simple form.

Such an account, prepared after the close of the period to which it relates, is presented in due course to the proprietors of the business.

The figures are made to yield what they will, generally in the form of percentage results, and the detailed figures of the current period are compared with those of one or more previous periods.

In result, various points are thrown into relief for investigation and the consequent information is made use of so far as is possible.

On such an examination of the figures quoted, the data on page 3 might appear.

The following are some of the chief points which appear to call for criticism as the result of this analysis—

(*a*) The fluctuation in the proportionate cost of goods used.

(*b*) The less violent fluctuation in the cost of wages (productive) which increased over the last two years.

TRADING AND PROFIT AND LOSS ACCOUNT

Dr. FOR THE YEAR ENDED 30TH JUNE, 1935 *Cr.*

	£		£
To Stock of Materials in hand (1/7/34)	4,659	By Sales, *less* Returns	33,860
,, Purchases . .	14,272	,, Stock of Materials (30/6/35) . .	5,913
,, Wages—Productive	12,244		
,, Gross Profit c/d .	8,598		
	£39,773		£39,773
To Wages—Unproductive . .	1,861	By Gross Profit b/d .	8,598
,, Salaries . .	1,120		
,, Rent, Rates, and Insurance . .	721		
,, Lighting and Heating . . .	189		
,, Repairs to Plant .	220		
,, Motor Expenses .	698		
,, Travelling Expenses	1,247		
,, Printing, Stationery, and Advertising . .	962		
,, Discounts allowed .	235		
,, Bank Charges .	32		
,, Plant Depreciation	106		
	7,391		
,, Balance, being Net Profit . .	1,207		
	£8,598		£8,598

	Year ended 30th June, 1933		Year ended 30th June, 1934		Year ended 30th June, 1935	
Sales . .		£ 32,150		£ 35,289		£ 33,860
	% to sales		% to sales		% to sales	
Goods Consumed	37·97	12,206	42·39	14,962	38·44	13,018
Productive Wages	34·74	11,169	36·89	13,018	36·17	12,244
	72·71	23,375	79·28	27,980	74·61	25,262
Gross Profit .	27·29	8,775	20·72	7,309	25·39	8,598
	100·00	£32,150	100·00	£35,289	100·00	£33,860
Expenses –						
Unproductive Wages . .		£ 2,524		£ 2,065		£ 1,861
Salaries . .		1,323		1,196		1,120
Rent, Rates, etc.		746		710		721
Lighting and Heating . .		204		216		189
Repairs Plant .		152		694		220
Motor Expenses .		432		541		698
Travelling . .		1,963		1,186		1,247
Printing, etc. .		312		344		962
Discounts . .		196		365		235
Bank Charges .		18		89		32
Depreciation .		116		112		106
	24·84	7,986	21·30	7,518	21·82	7,391
Net Profit .	2·45	789			3·57	1,207
	27·29	£8,775			25·39	£8,598
Net Loss . .			0·58	209		
			20·72	£7,309		

(*c*) The decrease in the amounts of salaries and wages (unproductive).

(*d*) The comparatively heavy cost of repairs and renewals in the second of the three years.

(*e*) The reduction in the cost of travelling.

If an attempt is made to draw what particular conclusions can be drawn from the general results (*a*) to (*e*), we may find—

(a) FLUCTUATION IN PROPORTIONATE COST OF MATERIALS

On the figures shown, a definite increase in cost arose in the year ended 30th June, 1934. This may have been due to a known rise in buying prices which could not be passed on to the customer; if this was the fact, the next year presumably saw an improvement in the position.

On the other hand, any accidental or considered variation in the method of valuing the stock at any part of the periods under review might seriously affect the apparent figures of material cost.

In result, therefore, while the figures displayed may enable opinions to be confirmed or may point towards certain conclusions, there is an absence of complete information, and only generalities can evolve.

(b) FLUCTUATION IN COST OF PRODUCTIVE WAGES

Assuming that an accurate analysis of wages paid has been made as between productive and unproductive, there is an increase in the proportionate cost of productive labour in the second of the three years.

Here again there may be some known factor which has given rise to the higher cost as, for example, an increase in rates of wages paid or the taking up of new lines which have called for more expensive labour without justifying a correspondingly higher selling price.

In the absence of such definite traceable cause, the reason for the increased cost must remain, to some extent, a matter for conjecture.

(c) FLUCTUATION IN COST OF UNPRODUCTIVE WAGES AND SALARIES

In this case also, the fluctuation occurs in the comparison of the first and second of the three years, but the cost has decreased.

Some well-understood reason may exist for this, such as a definite curtailing of staff in works or office made with the object of reducing expenses.

Alternatively, it may be that the analysis of total wages as between productive and unproductive has in the early period produced an incorrect burdening of unproductive wages by the inadvertent inclusion therein of wages which should have been classed as productive.

(d) THE COMPARATIVE COST OF REPAIRS AND RENEWALS

This is an item of definite expense, the cost of which in the three years under review has been—

	£
Year to 30th June, 1933 .	152
Year to 30th June, 1934 .	694
Year to 30th June, 1935 .	220

Here the increase of the second year is apparently an incontrovertible fact.

It may be, however, that while in the second year the repairs in question were carried out by outside contractors, repairs in the first and third years were largely performed by the firm's own workmen.

If this has been so, and definite allocation of labour and materials used for the purpose has not been made, the result shown may have this for its cause.

(e) THE REDUCTION IN THE COST OF TRAVELLING

This item of travelling is of rather a different class, ordinarily comprising definite expenses paid out at regular intervals during the period. Such payments find their way by the ordinary channels of book-keeping to a well-defined "Travelling Expenses" Account.

The comparison of the figures indicates a considerable saving in the second and third years as compared with the first and, as the Sales totals show, the turnover did not suffer by the economy.

The result of this criticism of points arising in the periodical Trading and Profit and Loss Accounts is, therefore, that in only one case, that of travelling expenses, has it been possible to take the showing of the figures at its apparent worth.

In the other cases, there is no certainty that the apparent showing is a correct interpretation of the facts.

It should now be obvious to the student that however carefully a Trading Account may be drawn and however carefully it may be criticized, the information which may be obtained from it is very much limited.

The presentation of periodical accounts means the production of the history of the business as a whole *over a given past period,* but does not give up-to-date and accurate information in such a form that it may be used as a reliable basis for future operations, nor does it make possible the separation of profitable departments, jobs or contracts from those which have been unprofitable.

Such information is, however, vital to the successful carrying on of a business. It becomes necessary, therefore, to provide detailed and accurate records which shall give in the best form possible and as quickly as they are needed, figure facts upon which the business management may rely and from which they may draw unambiguous and helpful conclusions.

The provision of such records as will fulfil these requirements is the peculiar function of Cost Accounting.

1. With what objects is a Trading and Profit and Loss Account prepared?
2. Can the information given therein be relied upon and to what extent?
3. What additional information should be available to the proprietors of a business?

CHAPTER II

THE PURPOSE OF COSTING

Cost Accounting may be defined as

"The method of recording accurately the facts of manufacture or other undertaking in such a way that necessary information thereon may be available in the form required at the earliest possible moment."

Considering this definition more closely, we see that it is apparent in the first place that an **accurate record** is of vital importance.

The facts of any business must be stated absolutely definitely if such facts are to be made control points in the running of that business in the future.

Secondly, the system must be so planned that the records disclose **necessary information** as to the progress of the undertaking.

In this connexion it is well to consider now that the installation of a cost accounting system is worth while financially only to the extent to which its existence can be shown to benefit the business.

As will be seen later, the cost accountant must be on his guard against any form of over-elaboration; this will usually take the form of the production and presentation of figures which are not of definite use.

In the same way, effective planning of the costing system will have as one of its objects the presentation of information **in the form in which it can be most easily used.**

Every successful costing system must make possible the **prompt** examination of up-to-date facts.

It has already been pointed out that cost accounting is not concerned mainly with the completed history of a business (which is the result of a book-keeping system), but has the particular function of supplying guide lines for its future carrying on. It is, therefore, obvious that there must be no avoidable delay in assembling the information disclosed by the system.

Cost Finding or Costing is "the ascertainment from the records of the cost of production of a manufacture or of the carrying out of a contract, process or other undertaking."

Estimating is "the ascertainment of the probable cost of production of a manufacture or of the carrying out of a contract or process, by reference to the information available."

At this stage, it will be well to consider what are—

(1) the objects,
(2) the results,

of the inauguration of a system of Cost Accounting.

The **Objects** may be stated as follows—

(*a*) To enable production to be the subject of a considered plan.

(*b*) To provide accurate and detailed records of the actual cost of the product, process or job.

(*c*) To provide information necessary for the proper administration of expenditure and fo
parison of expenditure as between period

(*d*) To provide means of control of i
by the fixing of responsibility.

barrel"
costs on
1.

(*e*) To make it possible to avoid leakage or wastage of material or the employment of unprofitable labour.

While the **Results** should be—

(*a*) That every part of the organization is made subject to criticism.

(*b*) That comparisons can be made, based on reliable data,

between departments,
between similar productions at different dates,
between cost of production and the cost of purchasing the completed article elsewhere.

(*c*) That the manufacturer is given all the assistance possible to enable him to quote successfully and profitably in competition.

(*d*) That detailed accounts can be prepared at frequent intervals, enabling policy methods to be criticized and mistakes rectified, at once.

With these points in mind, the student will appreciate at once that the basis of every system of Cost Accounting is **Analysis.**

As will be seen, it is necessary to reduce to its constituent parts the whole expenditure of the concern during a given period so that, for example, a total expenditure of £10,000 on Wages may be completely accounted for as—

Productive labour on specific production jobs.
Labour on patterns, plant or building maintenance or other similar service.
sted labour paid for.

same way, Materials used will be traced
nted for.

This accounting is obtained by a process of analysis, the process being extended just so far as is required to give the detailed knowledge necessary. The Cost Office routine and the Works Office procedure are designed merely to give the information with the least outlay of time or money.

While, for instance, in the case of a large manufacturing organization, it is necessary to install special staffs with detailed routine instructions, it would be futile to attempt any such ambitious schemes in the case of a small craft business, employing only a few workpeople.

The cost scheme must be framed to suit the particular needs of the business; cost accounting is not a matter of set formulae which are to be applied generally. Particular cases must have applied to them general principles, and the Cost Accountant must be intensely practical in his conception of what is required in the detailed application of those principles.

METHODS OF COSTING

By reason of the existence of widely differing types of commercial undertaking, it has been found convenient to classify the usual forms of Cost, mainly by reference to the normal unit of production or working.

The following are the classes—

1. **Single Costs** which are applied to concerns which supply a single product, in regard to which there is a natural "unit of production."

Examples: A brewery, which has the "barrel" as its unit of output; a colliery, which costs on the basis of the "ton" of coal obtained.

2. **Multiple Costs** applied to concerns which are engaged in the manufacture of a number of widely differing products, all of which go through some of the same processes of manufacture.

Example: A motor-car manufactory.

3. **Departmental Costs** applied to concerns whose operations can be dealt with in separate self-contained sections.

> *Examples:* A concern owning a chain of shops; a separate Repair Department of a manufacturing jeweller.

Note. It will be realized in regard to this class of cost that the departments may themselves be dealt with by the operation of some other form of cost.

4. **Process Costs** are applied to a concern, the products of which are obtained by passing through a number of distinguishable processes.

Example: A chemical works.

One of the results of costing separate processes is that by-products can be recorded and valued.

5. **Contract or Terminal Costs** applied to concerns which carry out undertakings in regard to which separate records are possible and desirable.

Examples: Builders' contracts; shipbuilding.

6. **Operating Costs** applied in the case of a concern which has no "product" for sale, but which is paid for "services."

Examples: Railway; haulage contractors.

1. Distinguish between—

   Cost Accounting.
   Cost Finding.
   Estimating.

2. What are the objects of Cost Accounting?
3. In what particulars do Multiple Costs differ from Operating Costs? What other costing classifications can you mention?

CHAPTER III

THE COMPONENTS OF COST

BEARING in mind the idea already expressed that analysis is the basis of costing, we may first consider the general term "Cost" and then commence the process of analysis by resolving a cost into its constituent parts.

Cost may be defined as "the ascertained amount which has been expended in every form during the process of converting raw material into a finished product, in completing a process or carrying through a contract."

From a practical viewpoint, it is obvious that the cost of every completed effort, whether of manufacture or of operation, must resolve itself into a valuation of—

material used and/or
labour expended,

while further, the handling of the materials and the control of the labour will each entail additional expenditure, as will the financing and commercial administration of the organization. These have also to be taken into account.

In the case of a manufacturing concern, a factory has first to be provided and equipped. Then the commercial running of the business has to be ensured, and arrangements made to obtain orders for its products and to distribute them.

The terms of usage or expenditure which come under these and similar heads are known by the general term of **Overhead.** The forms "Oncost" and "Burden" are sometimes met in the same connexion.

Continuing, therefore, we may show a complete manufacturing cost in its simplest form as follows—

Cost of Materials Used	
Cost of Labour Expended	
Overhead	
Completed Cost	
to which must be added—	
Profit	
to give the selling price	

Extending this a little further, we see that in many cases it is important to distinguish between the full cost of actual production, i.e. the **Factory** or **Works** cost—and the various other items of expenditure on selling, financing, distribution, etc.

CONSTITUENTS OF A COST

		£	
	Cost of Materials Used		
	Cost of Productive Labour Expended		
	Prime Cost		
Add	Expenses definitely attributable to production in the factory		Factory or Works Oncost
	Factory Cost		
Add	Expenses of		
	Management		General Oncost or Overhead
	Office		
	Finance		
	Selling		
	Distribution		
	Total Cost		
Add	Profit		
	Selling Price		

It will be seen that the process of analysis has at once begun to operate, although at this stage in merely a general way.

Before proceeding to more detailed examination of the constituents of cost, it will be well for the student to give his attention to some general considerations.

Costing is not a science of limited scope. It can be applied to every operation or series of operations, to every process or undertaking which involves expenditure. It can be made to record in terms of detailed outlay the erection of a building or the running of a gas engine, just as it frequently records the processes of production in a factory or in the separate departments of a factory.

In each of these instances, which can, of course, be multiplied without difficulty, the object of Cost Accounting (following the definitions of the previous chapter) is "to record accurately the facts . . . in such a way that necessary information thereon may be available in the form required at the earliest possible moment."

Inevitably, as the facts which it is required to ascertain vary considerably with the nature of the business or process of operation, the **detailed** methods by which the information has to be obtained will also vary—but the student must realize fully that the **principles** which will apply to any one of the above-mentioned Costing subjects (or to any other which may arise in his experience) will be invariable.

The object to be attained is in every case an accurate record of facts. The process of analysis supplies the method.

The nature and extent of that analysis will depend on the simplicity or complexity of the subject, on the size of the undertaking, on the extent of the "information" which it is deemed necessary to obtain in regard to it and possibly on financial ability to provide the staff necessary to carry out the work involved.

So far as possible, the matter of this book is set out in general terms but, of necessity, certain examples of detail methods and of routine forms will be found to have a particular application.

This should not give rise to any difficulty if the student will but hold fast to the governing principles.

The Constituents of a Cost will now be defined.

1. MATERIAL COST

This may be defined as: *the value of the material consumed in the production.*

(The term "production" is now used to include any process, operation or undertaking where material is one of the valuable elements.)

Material consumed must be distinguished carefully from materials purchased.

From an ordinary form of Trading Account of a manufacturing business, it is usually possible to extract the details given on page 18 (assuming figures).

From the limited information of the Trading Account, the value of materials consumed would be stated at £13,500.

	£
Material stocks at the commencement of the period	3,000
Net material purchase for the period . . .	15,000
	£18,000
Deduct—	
Stocks at the end of the period . . .	4,500
	£13,500

The accuracy of this figure is, however, subject to—

(1) An absolutely correct valuation of the stock at the commencement and end of the period covered.

(2) The assumption that all the materials absorbed have been rightly used in the manufacture of goods for resale.

With regard to (1), unless there is in existence some method of rigid stock control with consequent accurate stock-taking, the valuations placed on stocks at any given date will be found to have their limitations. Usually, the margin of possible error is sufficient to render useless for Costing purposes the figures obtained.

Similarly, with regard to (2), there are many possibilities which can nullify the value of the result shown.

Unrecorded leakages of stock by pilferage and wastage of material by reason of scrapped work are two instances of usage of material which cannot rightly be classed as costs of manufacture, but which are inevitably included under the general heading of "materials consumed" unless definite steps are taken by means of costing records to separate them.

In regard to materials, therefore, the costing system must—

(*a*) keep track of all materials;

(*b*) prevent, or in any case quickly expose, any serious leakages;

(*c*) enable accurate stock records to be available;

and by so doing—

(*d*) provide definite controls on the buying, storing and usage of materials;

(*e*) provide records of the disposal of material consumed and of the cost thereof.

2. LABOUR COST

This may be defined as: *the value of wages paid for the actual operations of production.*

Usually, the financial books provide for some analysis of total wages paid and for the showing in the Trading Account of an item of "Productive Wages."

Such analysis may take separate account of wages expended on repairs and maintenance, on pattern additions and renewals and other similar services.

The method adopted results somewhat as follows—

	£	£
Total Wages paid		18,000
Deduct—		
Unproductives (Labourers, Warehouse, Stores, etc.)	2,300	
Foremen	1,050	
Building Repairs	200	
Pattern Makers	750	
		4,300
Balance regarded as Productive (Trading A/c)		£13,700

On a little consideration, it will be seen that the figure of £13,700 cannot safely be accepted as in any sense a productive labour cost.

It has obviously been assumed that all the employees whose *work* is classed as productive have actually produced to the extent of the wages paid to them.

This does not follow—a machine operator who has been paid for forty-seven hours' work in a week may have worked productively for only a portion of that period.

It must be noted that wages paid can be regarded as productive only to the extent that they are paid for definite production under full working conditions.

Acceptance of the figure of £13,700 above as the value of Productive Wages implies its acceptance as the value of good work paid to workpeople who have consistently and effectively worked without wastage of effort or time.

This point may be further exemplified as follows—

(*a*) The analysis which obtains in the absence of a costing system classifies wages according to the *nature* of the employment paid for.

(*b*) It is a primary object of costing (in regard to labour) to produce an analysis of wages paid on the basis of *saleable product value.*

There is a fundamental difference between the results obtainable by these methods. Under (*a*) the wages paid to a fully employed machinist will be classified as productive because he is engaged on a job which is of a productive nature; while under (*b*) the costing system will treat as productive in the first place only that proportion of the wages so paid which remunerates actual labour on the productive job, and will record as a separate item any unproductive labour or idle time paid for.

The aims of costing in regard to labour are, therefore—

(*a*) to analyse correctly the total wages paid, thereby distinguishing between productive and unproductive labour cost;

(*b*) to provide the material for valuable criticism of the details of unproductives;

(*c*) to avoid loss owing to slackness and to enable improved control of labour to be maintained.

3. ONCOST[1]

Oncost is the third constituent which with material and labour makes up the total cost of the job, process or operation.

Oncost may be defined as: *the total of the general expenses of carrying on the business, other than direct costs of material and labour.*

In general, oncost includes all indirect costs of production (i.e. those which cannot be allocated to specific costings), costs of maintenance of the building and plant, costs of transport, costs of selling effort and distribution, financing and general administration.

By reason of the general nature of these items, the only method of dealing with them is to charge as part of the cost of each job, operation or process performed, such portion of the oncost total as is equitable.

---

[1] "Overhead" is now the preferred term, but it has not been thought necessary, in the present edition, to alter the term used in the original edition.

The difficulties which attach to this problem of apportionment and the methods which are adopted to deal with it will be discussed fully in a later chapter.

At this stage, it is necessary only that the student should understand clearly the exact nature of oncost.

If reference is made to the *pro forma* Trading and Profit and Loss Account shown on page 2, it will be seen that the figures thereof may be shown in the form of a cost statement as follows (assuming certain details)—

Materials Used	£	£
Opening Stock	4,659	
Purchases	14,272	
	18,931	
Ending Stock	5,913	
		13,018
Labour Cost		
Productive Wages		12,244
(*Note.* It is assumed that the above figures are actual costs of material and labour, obtained by accurate analysis under the operation of a costing system.)		
Prime Cost		25,262
Factory Oncost		
Unproductive Wages applicable to Production, Repairs to Plant, and Factory Expenses		1,940
Factory Cost		27,202
General Oncost		5,451
Total Cost		32,653
Profit		1,207
Sales		£33,860

General oncost might be more particularly classified as follows—

		£
Administration and Establishment		
Unproductive Wages (other than Factory)		141
Salaries (Office)		1,120
Rent, Rates, and Insurance		721
Lighting and Heating		189
Printing and Stationery		351
Bank Charges		32
		2,554
Selling and Distribution	£	
Motor Expenses	698	
Travelling Expenses	1,247	
Advertising	611	
Discounts Allowed	235	
		2,791
Plant Depreciation		106
		£5,451

The total oncost is £7,391. By analysis, factory oncost can be shown separately at an amount of £1,940, while general oncost absorbs the balance of £5,451. The latter can be divided under the relevant headings of Administration, Selling, Financing, etc., if further analysis is carried out.

It will be seen that the whole of the expenses of the business (totalling £32,653) have been absorbed in the total cost, either by way of productive cost of material or labour, or by way of oncost (divided as to factory oncost or general oncost or otherwise).

In the above example, the figures of a past period have been resolved into appropriate "Cost Components."

In costing practice, it is necessary to so deal with the expenditure *of a current period* that at its end the actual expenses of the business have been fully recovered by way of charge to customers in the form of wages, material or oncost.

It is, therefore, of primary importance that every item of expenditure should be accurately valued and correctly classified.

At this point, the student should be aware of the nature and the aims of costing and, to some extent, of the methods by which those aims have to be fulfilled.

The primary constituents of cost have been generally considered, and it is proposed in the next chapters to examine in detail the method by which in practice each of them is recorded and criticized.

1. What do you understand by "Cost"?

2. What are the components of Cost? Define them.

3. Is the value of materials purchased during a period a constituent of the cost of the production of that period?

CHAPTER IV

THE RECORDING AND CONTROL OF MATERIALS

In order to obtain effective control of the handling and usage of material, the first essential is the provision of an adequate and efficient **store.**

The store should be provided in the most suitable position in the works in relation to the various producing departments or sections, to all of which it should be easily accessible.

The needs of the particular organization may require, for effective operation, the splitting up of the stores into various units, distributed in different parts of the works, or the provision of a central store with sectional accommodation for special types or classes of material.

Separate stores are sometimes maintained in this way for—

Raw materials,
Parts purchased complete,
Repair section stores,
Tools, etc.,

while in many cases division is made of the principal store into—

Rough store,
Finished store.

In other cases, the nature of the product may affect the question, as in the case of a motor-car manufactory which will use a separate range of stores for the special materials and components applicable to each type of car produced.

The term "store" must, therefore, be understood to cover the whole of the storekeeping accommodation, in whatever form it may exist.

The actual stock-keeping is a matter to which considerable attention must be given.

The stores must be fitted with shelves, bins, racks or other receptacles suitable for the stock which is to be kept therein, and the arrangement of the interior of the store must be planned to provide for efficient handling by those in charge of the stock.

The stock must be so disposed that it can be easily identified, quickly obtained and handed out to the producing sections which require it without delay.

In cases where sufficient care is not given to the planning of the stores, time is frequently wasted in filling works requisitions for materials, and extra labour devolves on the stores staff.

Suitable barriers or issuing windows must be provided, through which materials demanded are passed out to the works departments.

The stock must be placed in charge of a competent storekeeper, who will be provided with what is necessary in the form of assistant storekeepers, labourers, etc.

Since absolute control of the stock is a necessity, a stringent rule must be made that stores can be issued only by the storekeeper or his authorized assistants and that no employee, not of the store staff, is allowed inside the store.

Needless to say, the store must be capable of being securely locked in the absence of the staff.

Considerable responsibility rests on the storekeeper, who must be competent and absolutely trustworthy. He must be familiar with all the items which comprise the stock and must be able efficiently to keep or to supervise the keeping of the detailed records which have to be maintained.

STORES RECORDS

It is essential that every item of stock and every class of raw material must be given a standard and consistent description which shall be used invariably both in the records of the stores and in every other department of the organization.

The works departments, for example, must demand supplies from store under the standard descriptions, which must also be applied when stocks are being ordered by the Buying Department.

Frequently, in addition, it is possible to allot part or component numbers to many of the items of the stock.

Where this can be done, the use of the numbers is valuable as it tends to simplicity of identification and provides an additional check on the recording of the stock.

The storekeeper must keep an accurate record of the movements of all items of stock.

This normally takes the form of a card attached to each receptacle in the stores, on which (in quantities or weights) all incoming and outgoing stock items will be recorded.

The card, which is usually termed a Bin Card, takes the following general form.

BIN CARD

DESCRIPTION 3/8" Hex. Brass Rod **PART NO.** —

MAXIMUM 2 Tons **MINIMUM** 3 Cwts.

IN							OUT						
DATE	REF'CE.	QUANTITY	WEIGHT				DATE	REF'CE.	QUANTITY	WEIGHT			
			T.	C.	Q.	Lb.				T.	C.	Q.	Lb.
1935							1935						
May 1	Stock			3	·	16	May 6	R 119			1	·	5
15	I 1620			5	1	7	11	R 283			·	3	12

Description is the "standard" description to which reference has previously been made.

Part Number is inserted where applicable.

Maximum and Minimum quantities. This requires some explanation. The figures give the authorized limits of the quantities which should be held in stock. The limits will have been fixed by the production management in conjunction with the Buying Office. The Production Manager will be able to estimate the normal periodical requirements of the item while the Buying Department will consider any difficulties of supply which make necessary the holding of more than the stock needed for normal production.

In some cases, this question of maximum and minimum stocks is dealt with in the Cost Office, and the stores is not concerned with it.

Frequently, however, it is of advantage to make the storekeeper responsible for keeping his stocks within stated limits. He will accomplish this by advice to the Buying Department of any item the stocks of which are approaching the minimum mark while, conversely, he will be required to report to the Cost Office when the maximum is exceeded without a special instruction having reached the stores.

Reference. Every movement of stock—in or out—must be made under some authority.

Incoming stock will be recorded by means of a Goods Inwards Book or an Inwards Voucher; withdrawals of stock from store will be made by means of a Requisition or Issue Note.

(The use of these will be discussed shortly.)

A reference sufficient for complete identification with the inwards or outwards record will be placed against every entry on the Bin Card.

In the example given, the letter "R" is used to refer to Requisitions for goods taken out of store, while "I" is used to refer to incoming stocks.

The Bin Card frequently contains a third column for quantity (or weight) in which the balance of stock after each incoming or withdrawal is recorded.

GOODS INWARD

These will comprise goods received direct from suppliers and receipts from the works departments.

Goods from Suppliers will reach the stores accompanied by the usual weight or delivery note. Quantities or weight should be carefully checked before the goods are accepted and any obviously faulty items rejected.

If a Goods Inwards Book is kept, the details will be recorded therein, the "standard" description being strictly adhered to.

The Buying Department and the Cost Office will then be notified of the details received and the goods placed ready for inspection as to size, quality, agreement with order, etc. This is frequently the work of an "Inspector" appointed for the purpose, while in other cases the storekeeper carries out the duty.

After inspection, the goods are placed in the appropriate bins, the necessary entries being made on the cards.

If Inwards Vouchers take the place of the Goods Inwards Book, numbered pads (in triplicate) are used.

Details of the delivery are recorded as above and copies are sent to the Buying Office and Cost Office, one copy being retained in the store.

Where the size of the organization justifies it, the use of Inwards Vouchers is to be encouraged, as the making out of separate advices is avoided and identity of record in the Buying Department, Cost Office and Stores is ensured.

Receipts from Departments. In addition to incomings from outside suppliers, the stores will have to receive and record returns from various of the works departments.

These items will generally fall into one of three classes—

1. Materials scrapped in the works.
2. Materials on which certain work has been done but which remain "partly finished."
3. Finished goods.

Materials Scrapped. It is essential that all scrap should be accounted for and the reasons for its occurrence known; equally it is necessary that all scrap should be returned to stores.

The matter should be dealt with by means of a definite system of record, which will be explained later (see page 81).

Partly-finished Work. From time to time "stock orders" will be given to the works to carry out specified processes or operations only, the work when done to be returned to store for holding against future demands.

A usual example arises where rough castings are sent into the works to be machined.

The stores will, in the first place, issue the rough castings against an authorized Issue Note or

Requisition; when the machined castings are returned to store, they will be received under a changed "description" and so recorded.

For the assistance of the student, it can be pointed out that in all departments of costing a clear distinction has to be drawn between the various processes of conversion of raw material into a finished product.

Rough castings and the same castings machined as in the example above, are entirely different stock articles and will, in the stores, be given different descriptions and entirely separate storage.

Take a further example on this point; if there are six operations in the manufacture of an article, the stores will take separate cognizance of—

(1) the raw material,
(2) that material with the first process worked,
(3) that material with the second process worked,

and so on.

Finished Goods. When the process of manufacture is entirely completed the usual procedure is for the finished work to be "passed" as to quantity, workmanship, etc. This may take place in a works section or in a separate "viewing" department.

When passed as satisfactory, the work will be sent to the warehouse for dispatch if it is required to execute a customer's order.

If, on the other hand, it is not the subject of an immediate sale, it will be passed into store, there to be held as stock. The storekeeper will receive the goods under the appropriate "description."

GOODS WITHDRAWN FROM STOCK

Stores are issued to the departments as they are required to carry out the production orders given by the management.

Each department will obtain the detailed materials required by presenting at the store a "requisition" therefor signed by the foreman of the department.

The requisition is met with in many forms, being adapted according to the needs of particular cases.

A simple form is as follows—

REQUISITION

Department No. .

To the Storekeeper.

Please supply the following—

Material or Part	Weight or Quantity	Works Order No.	Remarks

Date . . . . . *Foreman.*

Every requisition should bear a printed serial number and a record should be kept of the numbers issued to each department.

In some cases, it is arranged that the forms for each department shall be printed in a distinctive colour. If this is done, the Cost Office work of sorting the details as between departments is simplified. Moreover, the using of one section's forms by another section is largely prevented.

Material or Part. The standard description must be used and the storekeeper should not issue material unless the requisition for it is correct in this respect.

Weight or Quantity. This must be stated definitely.

Works Order Number. The requisition must state the precise purpose for which the material is required.

As will be seen later, production must be carried out in accordance with definite instructions from the management.

These instructions take the form of orders to the works to carry out certain specified processes or jobs. Each of these orders is given a distinctive number and it is this which must be quoted on the form of requisition.

Value. A further column is frequently provided for the insertion of the cash value of the material dealt with on the requisition.

The requisition must be properly signed and dated. The foreman is thereby held responsible for the withdrawal of material in accordance with the Works Order.

Convenient arrangements have to be made

between the store and the departments, by which delay in obtaining materials is obviated.

For this purpose, a rule is sometimes made by which details of materials required must be handed to the storekeeper not later than a stated time, some hours before the materials are needed for use in the works. This procedure makes it possible for the store staff to make ready the details of the requisitions without the confusion and delay which would arise if the requisitions were presented only when the works departments were actually waiting for the materials in question.

STORES LEDGER

Since all incomings and withdrawals of stores are now being recorded it is possible to put into operation a Stores Ledger which shall contain the details of the goods inwards records and the requisitions.

The Ledger will contain an account for each item held in the store, and the balance of such account at any time should show the quantity (or weight) in stock and its value.

Following is a simple form of Stores Ledger which serves to summarize from the inwards and outwards records the movement of stores.

The Stores Ledger will be found in practice in many and varied forms, some of which will be referred to later. The example shown is sufficient for the student's present purpose.

The Ledger should be kept by the Cost Office and should be quite independent of any records maintained in the store.

It has already been emphasized that a primary

STORES LEDGER

Description

Part No.

Bin No.

Maximum
Minimum

Suppliers					
Date	Ref'ce.	Price	Date	Ref'ce.	Price

Dr. *Cr*

Date	Ref'ce.	Qty.	Weight			Rate	Value			Date	Ref'ce	Qty.	Weight			Rate	Value		
			C.	Q.	Lb.		£	*s.*	*d.*				C.	Q.	Lb.		£	*s.*	*d.*

function of costing is to control the usage and movement of material; such control can only be attained if the detailed records existing in the store are subject to independent check. This the Stores Ledger can be made to provide.

The following notes refer to the form of Stores Ledger shown above—

Description. The standard description must be used.

Part Number. Should be included in relevant cases.

Bin Number. This is intended to serve as a useful link with the store records.

Suppliers' Cost Price. This information will be obtained from the Buying Office and amended from time to time as necessary.

The pricing of requisitions will be the responsibility of the Cost Office, so that the maintenance of accurate price records is essential.

Maximum and Minimum. These details should be recorded both in the Cost Office and in the store. Their inclusion here gives a further control on the ordering and usage of stocks.

The Stores Ledger (for which it is generally found convenient to use the loose-leaf system) will usually be divided into suitable sections corresponding with those into which the stores are divided, e.g.—

Raw materials and "bought out" parts.
Worked materials or partly finished goods in stock.
Finished goods.

Every item dealt with in the store by means of a Bin Card or similar record will have an appropriate account in the Stores Ledger.

On each side of the Ledger columns are provided for—

Date.
Reference.
Quantity and/or weight.
Rate.
Value.

Incoming Goods will be recorded as follows—

Goods from Outside Suppliers—by reference to the suppliers' invoices after these have been checked with the Delivery Notes and Inwards Vouchers received from the stores.

Partly-finished and Finished Goods—by reference to the Inwards Voucher passed to the Cost Office by stores.

Issues of Goods will be recorded from the requisitions or Issue Notes which will have reached the Cost Office from the stores.

When Inwards Vouchers and requisitions were discussed it was stated that these should bear printed serial numbers. It is necessary for the Cost Office to keep track of these numbers in order to ensure that *all* incomings and issues are included in the records.

The number of the appropriate Inwards Voucher or Requisition Note is inserted in the Stores Ledger in the column indicated, so providing a definite reference to the origin of each Stores Ledger entry.

Rate. The column bearing this heading is used to record the stock value of the item.

This value is, of course, the cost price in the case of direct purchases from outside suppliers, and in other cases is the ascertained "cost" as shown by the costing records.

Value. This column provides for the inclusion of the stock value of each item. This value is obtained by multiplying the quantity (or weight) by the appropriate "rate."

The Stores Ledger must be kept written up to date, this being one of the most difficult tasks falling to the lot of the Cost Office staff.

The amount of detail involved is in many cases enormous and a definite routine must be in operation to deal with it.

The storekeeper should be instructed to pass daily to the Cost Office all Inwards Vouchers and Requisition Notes dealt with in the stores on the previous day.

The stores clerk (or clerks) must arrange to make the necessary entries on the Bin Cards without any delay so that the procedure of handing over vouchers to the Cost Office is not interfered with.

The Cost Office staff engaged on the Stores Ledger will examine the detailed vouchers and will make the necessary entries daily.

If this procedure is carried out, the balances of the Stores Ledger at any given time should give the value of the stock in the stores and the total figure so obtained can be made of use if interim accounts or other statistics are required at short notice.

CONTROL BY MEANS OF THE STORES LEDGER

The Stores Ledger operates as a valuable control on what takes place in the stores. It is written up from what can be termed "original records" in the form of suppliers' invoices, Inwards Vouchers and Requisitions.

The usual half-yearly or yearly physical stock-taking will provide details which can be compared with those of the Stores Ledger. Any discrepancies will be investigated and accounted for, and if necessary, the Stores Ledger balances adjusted accordingly.

For control purposes, it is preferable to adopt a routine which will give a more frequent check on the stores details.

This can be done if a number of Stores Ledger items are taken daily or weekly throughout the year and made the subject of comparison with the physical stock existing in the store (and with the details of the respective Bin Cards).

This routine should be so arranged that every item of note should be so examined at least once in every financial year, in addition to the normal year-end stock-taking.

A discrepancy can arise from one of the following causes—

1. *Errors of Record in the Stores Ledger.* The Cost Office routine should provide for the checking of the Stores Ledger entries and should include an examination of the consecutive numbers of the Inwards Vouchers and Requisitions.

2. *Storekeeper's Errors.* If materials have been issued without a requisition, or in excess of the quantities stated on the requisition, there will be a corresponding shortage. This is definitely the responsibility of the storekeeper.

3. *Pilferage.* A shortage may be due to this and

responsibility again attaches primarily to the storekeeper.

It is important that discrepancies should not be accepted without investigation; explanations should be asked for and considered before the matter is considered closed.

In addition to providing a control on the stores, the Stores Ledger is a valuable guide to the operations of the Buying Department.

The figures of maximum and minimum stocks should be compared with the balances shown by the Ledger as they are available. Any serious divergence from the stated limits should be brought to the notice of the Buying Department at once.

When the Buying Department is asked to order goods, the details of the Stores Ledger will frequently supply valuable information as to the past usage of the items in question.

THE INSTALLATION OF THE STORES LEDGER

It will be realized that the Stores Ledger, recording as it does the movement of every item of material, part or finished stock, contains a formidable mass of detail.

The work involved in commencing to keep these records is in fact so enormous that in practically every case, the Stores Ledger has to be put into operation gradually.

This process must be carried out with due regard to the necessities of the case. The organization of the stores, and the introduction of adequate record by way of Bin Cards, will precede the installation of the Stores Ledger. Inwards Vouchers and Requisitions will also have been brought into use.

Certain items of stock will be most valuably dealt with first. These will fall into two classes—

(*a*) Items in respect of which the "movement records" will be of most immediate use.

(*b*) Items which are valuable and particularly subject to pilferage. Examples are (taking the case of a motor works): magnetos and speedometers which are easily concealed and are themselves of considerable comparative value.

The Stores Ledger will be commenced by opening accounts for a number of such items.

In respect of these, the balances shown by the Bin Cards will be checked by a physical count or weighing, and then inserted in the appropriate account in the Stores Ledger. Particulars of description, date of stocktaking, etc., will be added.

Further accounts will be opened as quickly as possible in the same way until the whole of the stock is covered.

As the accounts are opened, the records of "inwards" and "outwards" movement of the stock items concerned will be brought into immediate operation as part of a daily routine.

STOCKTAKING

When a physical stocktaking is undertaken, great care must be exercised to ensure that the result is an accurate record of all stock on hand. The procedure of stocktaking must be made the subject of definite instructions.

(1) The stock must be taken in appropriate sections, e.g. raw materials, finished goods, etc.

These will usually follow the arrangement of the

Stores and the Bin numbers will be quoted on the Stock Sheets.

(2) Every item of stock must be properly described according to the "standard description" in use throughout the system.

(3) All stock must be included.

(4) The stocktaking staff must check all counts and weighings before they are passed for inclusion on the sheets.

(5) Stock Sheets should be numbered and a record kept of the numbers of blank sheets issued. The completed sheets should be checked to avoid the possibility of the omission of a sheet.

(6) Stock which for any reason is not of full value should be separately listed for special consideration. Such stock may be faulty or may have deteriorated while in stock, or may have been rendered useless by a change in the type of product being made.

(7) Stock surplus to requirements should be the subject of special enquiry and its valuation carefully considered.

(8) The general valuation of stock should be on the basis of the lower of cost or market price in the case of materials or purchased components, while the ascertained cost will be applied to process and finished stocks.

(9) The details of the sheets will be compared with the balances shown by the Stores Ledger and any discrepancies investigated.

WORK IN PROGRESS

At a stocktaking date, the stores will contain stocks of materials, components and finished goods, the details of which will be compared with the Stores Ledger records.

In addition, distributed through the works, will be "works orders" in various stages of completion. These will comprise materials with varying amounts of "operation" performed on them. The term *Work in Progress* covers this class of item and valuation thereof must be made for inclusion with the total of stock in hand.

The basis of valuation of work in progress will be the ascertained cost, according to the extent to which the work has been completed, that is, the cost of material, plus the cost of labour expended thereon.

Opinions differ as to whether, or to what extent, an amount in respect of "overhead charges" should be included in the valuation of this class of stock.

The method of assessing the value of work in progress and the question of overhead in connexion with it, will be discussed later.

---

1. Generally, how would you set out to "control" materials used in production?
2. What are the attributes of an efficient Stores?
3. What are the uses of—

    Stores Ledger?
    Bin Card?
    Requisition?

CHAPTER V

LABOUR COSTS

THE costing system must provide—

(1) Control of the amount of wages paid.

(2) Accurate record of work done for the wages paid.

In addition, the system must operate in such a way that the possibilities of fraud in regard to wages are reduced to a minimum.

A separate **Wages Office** usually exists, in which is carried out the work of assembling and checking the details of time or piecework, and of completing the weekly wages sheets.

The Cost Office will control and generally supervise the work of the Wages Office.

The common **methods of payment** of wages are as follows—

1. Day work or payment for time occupied.
2. Piecework or payment at fixed rates for work performed.
3. Group or pool systems.
4. Bonus methods.

DAY WORK

This method provides for payment at an hourly or daily rate for time spent in the works. It is not, of itself, a satisfactory method, as expensive supervision is necessary to ensure that adequate results by way of production are obtained.

It has to be adopted, however, in regard to certain classes of work, the nature of which will not allow of the fixing of adequate piecework rates.

PIECE WORK

Rates are fixed for specific jobs or operations and payment is made by reference to these rates.

This method operates to put upon the workman the necessity to produce sufficient completed (and approved) work to provide his wages and is, therefore, more satisfactory than day work.

RATE-FIXING

Much depends on the fixing of a fair rate. A rate too high will involve the employer in loss, while the fixing of a rate below the correct point will result in the dissatisfaction of workpeople, with its attendant troubles.

The services of a competent rate-fixer are, therefore, highly valued.

The fixing of a rate in practice is usually the result of experiment carefully carried out under special supervision.

The job or operation in question is given successively to various operators who, while being paid day work, carry out the work under piecework production conditions. The times occupied are recorded over a test period and a fair average of time ascertained. This becomes the "standard" time for the operation and is the measure by which the piecework wages will be calculated.

In some cases, a piecework "rate per operation" is obtained on the same basis, e.g. operation—machining 100 V. Rods.

Times taken during test—

1.	330 minutes
2.	350 minutes
3.	285 minutes
4.	315 minutes
5.	290 minutes
6.	320 minutes
6)	1890
Average	315 minutes

If the appropriate day work rate is 1s. 7d. per hour—

(1) the standard of time for 100 sets is 5 hours 15 minutes;

(2) the rate per operation for 100 sets is 8s. 3¾d.

Therefore, if 1,000 sets are put through, the wage payable will be—

(1) $\left(\frac{1000}{100} \times \frac{315}{60}\right) \times$ 1s. 7d. = £4 3s. 1½d.

or

(2) $\frac{1000}{100} \times$ 8s. 3¾d. = £4 3s. 1½d.

in each case irrespective of the time actually taken to do the job.

Under any system of wage payment, it is necessary to provide a guaranteed minimum weekly wage according to the grade of labour employed. It follows, therefore, that for a piecework system to operate usefully

(1) there must be a sufficient demand to ensure a continuous flow of production.

(2) the plant available must be sufficient to avoid interruptions by changing over from one job to another.

(3) the work must be such as is capable of being produced in sufficient quantities.

Reference has been made to the importance of accurate rate-fixing.

While in practice it is not strictly true that "piecework rates, once made, cannot be altered," it is nevertheless far from easy to reduce a rate which experience has shown to be too high. With this difficulty in view, it is arranged in some cases that representatives of the workpeople and of the management shall form a Committee to decide upon any variations of piecework standards. The Committee will take into account information supplied by the rate-fixer and any available results of supervised production. Any new standard fixed as a result will be binding on both the workpeople and the employers.

GROUP OR POOL SYSTEMS

Where certain processes fall naturally to be carried out by a "gang" or "group" of workpeople, a system is frequently adopted whereby the group can obtain a bonus if its output in a given time exceeds an agreed quantity standard.

The standard (which is fixed after sufficient test and is agreed by the group) is the amount of completed work which *the group as a whole* must produce in the stated time (e.g. the working week).

The basis of the bonus has to be agreed in advance and will be allotted to the group (and not to individuals) in some proportion to the excess production as compared with the standard.

Where this method can be applied, it is found of considerable value. It becomes a matter of concern to each individual in a group to ensure that all the members of that group are effective and that each does his share. While only normal supervision is required, there is a tendency for idle and incompetent labour to be eliminated by the operation of the group itself.

BONUS METHODS

The theory underlying all bonus methods is that the workman, who by normal attention to his work can earn a fair wage, shall be provided with an incentive to increase his efforts in order to obtain some addition to his normal wages. The employer benefits by reason of the increased amount of production and by the proportionate saving in overhead costs.

All bonus systems require—

(1) the fixing of a standard of normal production,

(2) the fixing of the basis by which wages shall be increased as the standard output is exceeded (or standard time is saved).

Many such schemes (see below) have been applied but with only partial success. The workpeople are usually suspicious of the "standard of output," and in many cases are not willing to put forward more effort than is required to provide them with a certain scale of wages.

Further, there is generally a feeling that the employer is benefiting in proportion more than the workpeople as the result of the special effort put forth to earn the bonus.'

The following methods have been operated with varying degrees of success—

(*a*) **Priestman Bonus.** A normal production quantity is agreed upon as the "standard" output.

Approved production above the "standard" merits a bonus addition to normal wages of the proportion which the excess output bears to the standard.

It will be noted that, by this method, there is no set limit to possible earnings.

The bonus given by this system is based on output.

In the following examples, it will be seen that the bonus is based upon "time saved."

(*b*) **Halsey Weir Bonus.** A standard of time is agreed in which the work is to be done. The bonus is based upon the time saved.

An addition to wages is given of one half of the time saved calculated at the normal wage rate paid to the individual.

Example—

Time allowed . .	100 hours
Time taken . .	60 hours
Time saved . .	40 hours

Bonus paid = 20 hours at ordinary rate.

(*c*) **Halsey Bonus.** Based upon time saved, the basis for payment being one-third of the time saved.

(*d*) **40 per cent Gantt.** A time allowance is allotted to the job, being the time in which it can be done by a skilled worker. If the work is done within the time allowed, a 40 per cent bonus is added to the wages paid in respect of the job.

If the time allowed is exceeded, no bonus applies, but ordinary rates are paid for the time occupied on the job.

(*e*) **Emerson.** Similar to the Gantt system, but a reduced bonus (e.g. 20 per cent) is given if the job is completed within a time limit of 50 per cent more than the "time allowed."

(*f*) **Rowan.** In this case, a bonus is given which varies with the proportion of time saved, a time allowance being fixed for the job.

The bonus is calculated as—

$$\frac{\text{Time saved} \times \text{time taken}}{\text{Time allowed}}$$

Here are two examples—

	(*a*)	(*b*)
Time allowed .	100 hours	100 hours
Time taken .	40 hours	60 hours
Time saved .	60 hours	40 hours
Bonus . .	$\frac{60 \times 40}{100}$	$\frac{40 \times 60}{100}$
	= 24 hours	= 24 hours

In each of the two cases cited, the bonus is exactly the same in amount, being the value at normal rates of twenty-four working hours.

In (*a*) the bonus is paid in addition to wages paid for forty hours of work.

In (*b*) the bonus is paid in addition to payment for sixty hours of work.

It will be seen that by this method the liability of the employer is limited, as the worker cannot, in any circumstances, earn double normal wages.

ROUTINE IN REGARD TO WAGES

Whatever system of wages is operating, steps must be taken to ensure that the attendance of the workpeople is correctly recorded.

Usually some form of mechanical recording clock is installed at the entrance to the works or section. Each employee makes use of a card on which is stated his name and works number.

These cards are placed in order in racks adjacent to the clock.

The employee takes his card on entering or leaving the works and inserts it in the space provided in the clock.

The pressing of a lever enables the machine to record the exact time.

At the end of the working week, the cards are collected and taken to the Wages Office, new cards having been provided for the rack.

The Wages Office will insert the number of hours worked under the appropriate headings of "Ordinary" and "Overtime," and the total of these columns will be inserted on the Wages Sheet or Wages Book.

In some cases the clock cards will contain spaces in which the amounts of wages payable and deductions therefrom can be stated.

An official timekeeper should be present while the employees are entering the works in order to see that the system is not abused. If control of this kind is not exercised, it will be possible for an employee falsely to record the entry into the works of other employees by "clocking in" on their cards in addition to his own.

Where no system of automatic record is

TIME CARD

No.					
Name					
Day		In	Out	Ordinary	Overtime
TH	A M				
	P.M.				
F.	A.M				
	P M				
S	A M				
	P M.				
SUN.	A.M				
	P.M				
M.	A M				
	P M				
T.	A M				
	P M				
W.	A.M				
	P.M.				
Rate		Total			

employed, other means are employed to check the passing of employees into the works.

A common method is for each employee to be given a disc on which his works number is stamped. A board is provided at the entrance to the works on which the discs can be hung in numbered spaces as the men enter the works.

The timekeeper will be present during the process and will remove the board when the regulation time has passed.

Late-comers will deposit their discs with the timekeeper, who will record the time of their entry against their names in a time book. The board with the discs thereon will be placed in readiness at the time of leaving, when each employee will take the appropriate disc—employees who are working overtime will then obtain their discs from the timekeeper, who will record the leaving times of these special cases.

TIME BOOK

Week Ending . . . .

No.	NAME	THURSDAY				FRIDAY				
		A.M.		P.M.		A.M.		P.M.		
		In	Out	In	Out	In	Out	In	Out	
										The remaining days of the week will be similarly provided for, Sunday being included.

WORK OF THE WAGES OFFICE

The Wages Office will be responsible for recording the attendance of the workpeople by means of the Clock Cards or whatever time records are in use.

The Wages Sheets or Book will be made up in the Wages Office in readiness for the weekly pay.

Dayworkers will be paid at the appropriate rates for the number of hours worked.

The hours worked will be obtained from the clock cards and the calculated amount of wages earned entered in the Wages Book against the name of each employee.

This amount is the gross wages (see form of Wages Book inset). Deductions are made therefrom for National Insurance (employees' portion), Hospital and any other contribution schemes which may be in existence.

If any system of fines for lateness is in operation, the wages staff will examine the time records in this connexion and make the necessary deductions from wages.

Pieceworkers will be paid wages at the rates fixed for work done during the week.

Each pieceworker will be supplied with a book or with "Piecework Sheets," in which he will record details of work completed, and the appropriate Works Order or Job number. The entries therein will be vouched by the foreman of the shop, who will attach his signature.

The books or sheets will be collected weekly and brought to the Wages Office and will form the basis of calculation of wages earned.

The Wages Office will maintain an accurate list of "piecework rates" or piecework "time allowances."

Piecework details will then be passed to the Cost Office, where the staff will compare them with the returns of production on the various "Works Order" or "Job" numbers.

Where pieceworkers have worked on day-work terms on particular jobs, the time so occupied will be paid for at the standard time rates. The time so occupied will be recorded by the workman, either in his piecework book or on a separate time card supplied for the purpose.

The Works Order number or similar reference will be stated and will enable the Cost Office to check the details with the information of its independent "returns."

If the total earned by the pieceworker by way of both piecework and day work falls short of the minimum wage guaranteed, the deficiency has to be made up. The Wages Office deals with this, noting from the Clock Cards or time record whether full attendance has been made.

The checking of production detail will occupy a fair amount of time and some works rule as to payment of wages has therefore to be made.

It is obviously impossible to make up, check and pay wages on, say, Friday in respect of work only completed on the preceding day.

Various methods are adopted to overcome this difficulty.

Frequently wages are paid up to a fixed day, earlier than the actual pay day. The interval period so "kept in hand" will be settled according to the circumstances. In many cases one week is retained.

If, owing to trade custom or other special circumstances, it is not possible to arrange matters in this way, wages will be paid in full with the proviso that the payments are subject to adjustment in the following week if the checking reveals any errors in record or calculation.

Where wages are kept in hand, it will generally be found necessary to provide for the wants of workpeople who require advances on account of wages.

The payment of *subs*, as these advances are termed, should be dealt with by the General Office out of its petty cash, an authority for the advance being given by the person whose responsibility it is.

The list of amounts so advanced, with the names and works numbers of the recipients, will be passed to the Wages Office.

The wages staff will record the "subs" as deductions on the Wages Sheet, handing over the total amount to reimburse petty cash when making up of the wages is complete.

The form of Wages Sheet shown (inset) is merely an example.

The sheets in respect of each department or section will be made up separately, and it is best for separate totals to be inserted at the foot of each sheet.

An additional summary sheet or sheets is made up when the details are complete, which will give the totals of each section and of the whole.

In some cases piecework wages are dealt with on separate sheets or in separate special columns.

In the example given, the letters "PW" have been inserted to indicate such cases.

Where a pieceworker has to be paid a balance to bring his earnings up to the guaranteed weekly rate, the fact should be clearly shown.

Here, also, methods vary, a special column being sometimes used for such balances.

Alternatively, as shown, an additional item with the word "extra" will suffice for the purpose.

When the sheets are completed and the extensions and additions made, the calculations should be checked by members of the wages staff other than those who made up the sheets.

In order to avoid as much as possible the opportunity for fraud, the various stages of preparation and payment of wages details should be handled by a number of different persons.

The Wages Office staff, having dealt with the making up and checking of the detail sheets, should not be concerned with the preparation of the corresponding cash details.

The sheets and completed summaries should be sent by the Wages Office to the secretary or other official to whom is given the responsibility for payment of wages.

The weekly summary of the wages sheets should

Week Ending	
Times made up by . . .	
Piecework calculated by . .	
Extensions made by . . .	
Additions made by . . .	
Extensions checked by . .	
Additions checked by . .	
Cash made up by . . .	
Wages paid by	

bear the initials of every person who has dealt with their preparation or payment. A suitable rubber stamp is usually provided for this purpose.

It may be found necessary for each sheet or each departmental summary to be separately initialed if the work has been extensively distributed.

PAYMENT OF WAGES

The Wages Summary will show totals of gross wages payable, deductions therefrom and net wages payable.

A cheque should be drawn (by the authority of the secretary or other responsible official) for the amount of the gross wages. The cash will be obtained in the denominations required for convenient making up. It will be of advantage to make a separate denomination statement for each wages sheet or section total, as this tends to facilitate the actual process of making up and also narrows the field in which an error has to be sought.

Cash to the amount of the net wages, with the wages sheets, will be handed to the clerks detailed for the duty of "making up."

Numbered tins or boxes are generally used, and these will be placed in readiness.

In respect of each employee, the amount of net wages due to him will be placed in the receptacle which bears his number. A slip is usually inserted in the tin giving details in each case of wages earned, deductions therefrom, and net balance represented by cash.

When the sheet or section has been completely dealt with, the whole of the cash appropriated to it should have been absorbed.

No.............. Week Endg... ....

Name ....

				£	s.	d.
Gross Wages:	Hrs.	Rate				
Daywork . .						
Piecework . .						
Bonus . . .						
Deductions:	£	s.	d.			
N. Insce. . .						
Hospital . .						
Subs. . . .						
Net Payment . .						

When the whole of the wages have been made up, the filled tins must be kept carefully until the actual time of the pay.

In many cases trays are provided in which the tins are placed in numerical order. The trays will then be placed in a safe or strong room if an interval is to elapse before their distribution.

The amounts deducted from wages for "subs" and hospital contributions should be handed over to the persons responsible for petty cash and hospital fund respectively. Employees' contributions in respect of National Health and Unemployment Insurance will be passed to the person responsible for the stamping of the cards (see below).

The distribution of wages should be made the subject of very careful arrangement.

(1) Payment should be made by a clerk or clerks who have had nothing to do with the making up of the sheets or wages cash.

(2) The departmental foremen should be present while the men of their departments are being paid.

(3) A responsible official (e.g. the secretary) should attend the pay.

The number and name of the employee should be given by each as he or she reaches the paying table. The duty of the foreman in attendance is to identify the employees of his department or section.

A basket or box will be provided in which the emptied tins can be deposited as the employee leaves.

Instructions should be in force as to the procedure to be adopted by an employee who disputes the amount paid to him. Any such points should be reported to an official as quickly as possible and the matter investigated and settled without delay.

Left Overs. For various reasons some of the wages items will not be claimed at the pay. These will comprise employees who are sick or absent for other causes.

All unclaimed wages should be returned at the end of the pay to the custody of the secretary or other official responsible. Very great care must be exercised to see that these when claimed are paid to persons who are entitled to receive them. Arrangements should be made for such absentees to make special application (personally or by approved proxy) to a trusted member of the secretary's staff and a signature should be obtained in acknowledgment.

Fraud. Whether the concern be large or small, the distribution of wages, unless under the strictest possible control, presents opportunities for fraud.

The system of dealing with wages should, therefore, be devised with this danger well in view.

It has already been said that the whole process of making up and paying wages should pass through as many hands as possible. In this way fraud can generally be made impossible without collusion.

In addition, the duties of the wages staff should be frequently changed. Independently the Accountant's Department should make continuous and varied tests of portions of the wages detail.

The whole system in regard to wages should be subjected to frequent criticism in order, in the first place, to ensure that no weak points have developed and, secondly, to ensure that the whole of the system is being operated in accordance with the detailed instructions given at its inception.

Fraud in this connexion sometimes involves the inclusion on the Pay Roll of bogus employees, and the following example which arose a few years ago in a manufacturing firm will serve to illustrate the possibilities.

The system laid down was a good one, as follows—

Time clocks were in use and a timekeeper was present at the times of opening and closing the works. In addition to the clocks, a Time Book was carefully kept.

The wages office made up the Wages Book, which when completed was passed to the General Office for checking of its detail.

After this, the book went to the secretary's office, where the cash for wages was made up and retained until the time for pay.

The pay was made by a member of the secretary's staff in the presence of the foreman of the department and at intervals of the secretary or assistant secretary.

"Left overs" were returned to the secretary's office and the rule was that applicants should give details of name and number to the departmental foreman concerned, who passed a signed request for the appropriate wages to the secretary's office *via* the Wages Office. The wage tins in question were released by the secretary's staff and passed to the applicant by the same route.

This system had been in operation for some years when it was discovered that considerable defalcations had arisen. Investigation showed that over a long period, the Wages Books had contained bogus names, some of which had appeared for many consecutive weeks.

Ultimately, the commencement of the fraud was traced back to the date of the appointment of the head of the wages office.

This individual, shortly after his appointment, had designed a "Summary Wages Card," on which were shown details of hours worked, piecework earnings, rates of wages, gross and net wages due, etc. Different colours were used for male and female employees. The making up of one of these cards for each employee was made a routine of the wages office and, in due course, the cards were sent with the Wages Book and the appropriate Clock Cards to the General Office for check. For a short time (during which all the details were correct) the General Office staff carried out its check of the Wages Book details with the Clock Cards and *with the Summary Cards.*

After a time, the Summary Cards only were sent with the Wages Book, the Clock Cards being kept back. In this way, the General Office staff were induced to accept the carefully prepared Summary Cards as the only necessary check on wages details, the dirty and sometimes dilapidated Clock Cards being dispensed with. As soon as this position had been created, the wages clerk began to insert bogus names in the Wages Book, at the same time preparing Summary Cards in respect of their supposed "earnings."

So far it is easy to see what had happened, but it was not so easy to discover how the wages clerk had managed to possess himself of the wages cash in respect of the bogus employees.

Further investigations disclosed the method by which this had been accomplished. The wage tins concerned were, of course, unclaimed at the pay and as "left overs" were returned with those of genuine cases to the secretary's office. On the following day, a requisition signed by the foreman would reach the wages office for the wages of certain employees who had applied to him in accordance with instructions. To this list, the wages clerk added the "name and number" of the "bogus" employees before forwarding the list to the secretary's office.

The appropriate tins were sent down to the Wages Office where the wages clerk extracted the false numbers and passed the remainder to the foreman, who distributed them and returned the empty tins to the Wages Office.

In this way, the wages clerk who, it will be noted, did not figure in the making up of wages cash or at the pay, was able to appropriate considerable sums week by week.

This was a case where the system, had it been strictly adhered to, was a good one.

The possibility of fraud arose because the staff responsible for checking the detail of the Wages Book was cleverly persuaded to depart from the procedure prescribed.

In order to obviate the possibilities of fraud so far as possible, it should be arranged in respect of every wages "system" that—

(1) Attendance records (Clock Cards or Time Book) shall be compared each week with the entries in the Wages Book.

(2) The Wages Book details shall be checked with information reaching the Cost Office from "works" sources, e.g. time chargeable to Works Order numbers, etc.

(3) At frequent intervals, current insurance cards shall be compared with the Wages Book and thorough investigation made of any case in which it appears that an employee's card is missing.

(4) The whole routine of the system shall be subject to frequent examination and that, in particular, the question of "left overs" shall be carefully studied.

(5) Changes, dictated by proper authority, shall be made in the composition of the staffs detailed for work on wages and in the duties of the individual members of those staffs.

EMPLOYEES' RECORD SHEETS

In many cases it is the custom to record details of the employment history of each employee. Cards or sheets are prepared which provide for the insertion of name, address and age of the employee, and in addition—

Date of engagement.
Works number allotted.
Department in which engaged
Nature of employment.
Terms of employment.
Rates of wages, bonus, etc.
Date of leaving.
Cause of leaving.
Signature of engaging foreman.
Signature of dismissing foreman.

In respect of transfers to another department, a further card is used giving—

Name of employee.
Works number.
Date of transfer.
From ....Department.
To ....Department.
Nature of employment (if changed).
Terms of employment (if changed).
Rates of wages, etc. (if changed).
Signature of official authorizing transfer.

The records are filed in such a way that they are capable of easy reference.

NATIONAL INSURANCE

The stamping of the cards is a matter which must also be the subject of a definite routine. This can be dealt with in various ways, the main points being the making of someone responsible for the work and the creation of a checking system which will ensure its being performed.

The weekly amount to be disbursed in the purchase of stamps will be the totals of the Wages Book columns of Employees' and Employer's Health and Unemployment Insurance contributions.

Stamps for this total amount (of which the employees' contributions will have been deducted from wages) should be given to the clerk responsible for stamping the cards, who should in no circumstances be given the cash with which to purchase them.

The stamped cards should be called for at frequent intervals and examined. Periodically a week should be checked in thorough detail with the Wages Book.

In many cases, stamps are purchased in bulk from the Post Office, a cheque being drawn in payment.

The stock of stamps should be kept securely by a responsible official, who will issue weekly the exact quantities required to the stamping clerk.

PROFIT SHARING SCHEMES

In certain instances, firms have made it possible for their workpeople to earn by their efforts a share in the profits of the concern.

This is, of course, by way of bonus for extra production resulting in the success of the concern's working.

The conditions applying to such schemes vary considerably in individual cases. The "share" is sometimes payable in cash after the publication of the profit figures, while it is sometimes a condition that the employee shall invest some proportion

EMPLOYEES' RECORD SHEETS

In many cases it is the custom to record details of the employment history of each employee. Cards or sheets are prepared which provide for the insertion of name, address and age of the employee, and in addition—

Date of engagement.
Works number allotted.
Department in which engaged
Nature of employment.
Terms of employment.
Rates of wages, bonus, etc.
Date of leaving.
Cause of leaving.
Signature of engaging foreman
Signature of dismissing foreman.

In respect of transfers to another department, a further card is used giving—

Name of employee.
Works number.
Date of transfer.
From... . ... ..Department.
To ... Department.
Nature of employment (if changed).
Terms of employment (if changed).
Rates of wages, etc. (if changed).
Signature of official authorizing transfer.

The records are filed in such a way that they are capable of easy reference.

NATIONAL INSURANCE

The stamping of the cards is a matter which must also be the subject of a definite routine. This can be dealt with in various ways, the main points being the making of someone responsible for the work and the creation of a checking system which will ensure its being performed.

The weekly amount to be disbursed in the purchase of stamps will be the totals of the Wages Book columns of Employees' and Employer's Health and Unemployment Insurance contributions.

Stamps for this total amount (of which the employees' contributions will have been deducted from wages) should be given to the clerk responsible for stamping the cards, who should in no circumstances be given the cash with which to purchase them.

The stamped cards should be called for at frequent intervals and examined. Periodically a week should be checked in thorough detail with the Wages Book.

In many cases, stamps are purchased in bulk from the Post Office, a cheque being drawn in payment.

The stock of stamps should be kept securely by a responsible official, who will issue weekly the exact quantities required to the stamping clerk.

PROFIT SHARING SCHEMES

In certain instances, firms have made it possible for their workpeople to earn by their efforts a share in the profits of the concern.

This is, of course, by way of bonus for extra production resulting in the success of the concern's working.

The conditions applying to such schemes vary considerably in individual cases. The "share" is sometimes payable in cash after the publication of the profit figures, while it is sometimes a condition that the employee shall invest some proportion of his "share" either by purchase of capital of the concern, or in some defined "thrift fund" organized by the firm.

It is claimed for such schemes—

(1) That they provide a direct incentive to the whole body of employees to consider the interests of the firm, and by so doing benefit themselves and the employer.

(2) That they encourage thrift.

(3) That in result, the benefit obtained by the employees is greater than the operation of "individual" bonus schemes.

While many such schemes have been put into operation with success, there are many cases in which workpeople have not responded as heartily as would be expected. The reasons for this are, chiefly—

(1) That the employee is averse to any scheme which does not provide for immediate payment to him of bonus earned.

(2) That the employee resents the attaching of "conditions" to any part of his total earnings.

FINES

Penalties are sometimes imposed by employers in respect of breaches of works rules by the workpeople, e.g. continued late arrival, breakages, etc.

The penalty usually takes the form of a "fine" to be deducted from the offender's wages.

Where a system of fines is in force, the Wages Book will contain a column for their deduction from earnings.

Usually, the amounts so deducted are later handed over by the employer for the benefit of the workpeople, generally by way of contribution to a Works Sick Fund or to its Athletic Club if one exists.

---

1. By what usual methods is labour remunerated?
2. How would you ensure that none but persons properly employed in production receive payment for their labours?
3. What deductions have usually been made in arriving at the "Net Wages" payable to an employee?

CHAPTER VI

ASSEMBLY OF MATERIAL AND LABOUR DETAILS

THE two preceding chapters have dealt with the methods of recording and controlling expenditure on material and labour respectively.

Reference has been made to the independent production records which are obtained by the Cost Office and the use of "Works Orders" has been mentioned in this connexion.

In order to attain the results for which the costing system is installed, it is essential that every production, job or undertaking should be carried out as part of a definite programme.

This may be a fairly simple matter in a case (e.g. contractors) where certain definite jobs are in hand, each of which can be treated as a separate undertaking.

The programme in such a case will involve only a setting out of the jobs in hand and the ordering to these jobs of the available labour. Materials required for each will be arranged for as necessary and distributed under definite allocations.

Where the work in hand is more involved, as in the case of many manufacturing concerns, the arrangements will necessarily be more complex.

The works programme will be laid down by the production management, based upon what is required to meet the demands of—

(1) Orders on hand.
(2) Stock standards.

It is essential that the available plant shall be used efficiently, and that the scheme of production shall bring into existence the necessary processed or completed components in their right relative proportions and at the right times.

The framing of the programme is generally made the work of a separate **Planning Department.**

This department will, in the first place, make up a schedule of production requirements for one month, three months, or other appropriate future period.

The details will be ascertained by an examination of orders on hand, and a computation of what is required to meet the expected future demand, taking into consideration the present state of all classes of stock held.

In addition, the settled policy of the organization must be considered in this connexion.

If, for example, it has been decided to give particular publicity to some special product, the extra demand for that product must be gauged in anticipation.

The next task of the Planning Department is to bring into existence the detailed instructions by which the production is to be carried out.

Here will be involved the preparation by the Drawing Office of the necessary detailed working drawings and the making up of material sheets which will give quantities or weights of accurately described materials to be used in various sections of the production.

The preparation of definite instructions in the form of Works Orders or Operation Orders, will follow the gathering of the above information.

WORKS ORDERS

The Works Order is a very important means of control of production since it sets out definitely—

(1) The exact work to be done—giving in sufficient detail the operations to be carried out.

(2) Any necessary special instructions as to urgency of delivery or other matter requiring it.

WORKS ORDER

No. ....

Date issued . . . . *Date delivery required*..................

Particulars of Order: *Drawing No.(s)*

Operations:	*Rate.*	*Date completed:*
....	....	....
....	....	....
....	....	....
....	....	....
....	....	....
....	....	....

Materials Required:

Special Instructions:

Order issued by .. . .

The above example will serve to illustrate a usual form.

For record purposes, every such order will bear a distinguishing number—which will be quoted in Requisitions for materials and progress records.

Particulars of Order. Adequate description of the work covered by the order will be given, with a reference to the customer's order number.

Operations. Exact details of the process or operation to be performed will be stated. If the job comprises a number of operations, these will be similarly stated in the order in which they are to be performed.

The Works Order is sometimes issued accompanied by separate "Job" or "Operation" Order Cards for each individual section of work involved in the Works Order or "Master" Card.

Drawing Number(s). Here are given necessary references to the drawings or blue prints on which the working details are shown.

Materials Required. Standard descriptions will be used with definite figures of quantities or weights. Where the items of materials required are numerous, the space will contain a reference to a separate "Materials Specification."

Signature. The issuing official of the Planning Department will sign the order.

STOCK ORDERS

The Planning Department will need to arrange its programme in close co-operation with the Buying Department and Stock Office. It is essential that the materials required by the various "Materials Specifications" shall be available when required.

To this end, the details of stocks on hand and buying contracts existing will be carefully considered, necessary arrangements being made to obtain what further materials or parts will be required.

Of the components or accessories used in the production, some will be purchased from outside suppliers (bought out parts), while others will be manufactured or assembled on the premises.

In regard to the latter, standard quantities to be held in stock will be fixed, as with other items of stock.

Where either for the maintenance of the standard or for the special requirements of the production programme, the existing stock needs to be increased, a Works Order will be issued by the Planning Department to cover what is necessary. Such an order is usually termed a "Stock" Order. Stock Orders may be given in other circumstances also.

During periods of slackness when definite orders in progress are insufficient to keep the works fully employed, the management may decide to deal with the situation by allowing stock standards to be exceeded in certain particulars. Stock Orders will be issued in respect of such items.

STANDING ORDER NUMBERS

In dealing so far with Works Orders and Stock Orders, the greater proportion of work carried out in the works has been covered.

Certain other work will be performed, however, as need arises by way of maintenance of the works building or plant, experimental work and other factory or establishment services. The following are examples of usual items of this nature—

Repairs to Buildings.
Repairs to Plant (Works sections being separately treated).
Additions to Buildings.
Additions to Plant.
Fixtures Additions.
Fixtures Repairs.
Experimental Work.
Jigs and Tools.
Gas Engine No. 1.
Gas Engine No. 2.
Oil Engine.
Millwrights.
Works Vans—Running and Repairs.
Shop Labourers. Canteen.
Lifts.

The list can be modified in accordance with the circumstances in a particular case. Each of such items will be given a definite number or distinguishing initial and all labour employed or material used thereon will be allocated strictly in accordance therewith.

The term "Standing Order" is sometimes replaced by "Works Expense" or "Permanent Order." Where different departments are concerned, the record will bear a further identification to enable the charge to be made correctly.

Repairs to plant, therefore, may be consistently known as S.O.2 or P.O.2, while work of this nature carried out for the machine shop may be indicated by S.O.2/M or P.O.2/M.

It will be obvious that expenditure which will occur under the general heading of Standing Orders is that which will not be capable of direct charge to a customer under a definite production order, nor to particular Stock Orders.

The expenditure concerned will comprise—

(1) Capital outlay carried out with the concern's own material and/or labour.

(2) Maintenance of buildings or equipment similarly.

(3) Essential services of the nature of oncost, e.g. engine running costs, experimental work carried out, upkeep of tools.

ISSUE OF ORDERS

Detail Works Orders, Stock Orders or orders under Standing Order numbers will be prepared either by the Planning Department or by a separate "Works Order" staff. Each order will have attached to it all necessary drawings and materials specifications. One copy will be retained for reference, one copy will be issued to the works department required to carry out the work, while a third copy will be passed to the Progress Department (see below).

Piecework prices applicable will have been fixed as previously indicated, and will be stated on the order.

The foreman or section superintendent who receives the order will apportion the work according to its nature and the labour available.

Requisitions will be made out and stores drawn in readiness. The storekeeper will see that the terms of the material specification have been strictly adhered to and that the requisition is in all respects correctly compiled.

PROGRESS

When the Planning Department has arranged for the production budget, and instructions have been issued in the form of orders to the works, responsibility passes to the Progress Department.

This is one of the most important sections of the organization.

The department watches the progress of production, keeps track of all the work that is going through and ensures, so far as possible, that work is completed in time for promised delivery or in readiness for assembly with other parts being manufactured.

It is the duty of the department to deal promptly with occurrences in the works which might hold up production and to see that material specially ordered is delivered by the stipulated time.

The routine by which the Progress Department carries out its primary duty of keeping production up to schedule, is so arranged that records emerge which can be made use of by the Cost Office.

Materials. Particulars are obtained as stated above by Requisition in accordance with the Works Order or Materials Specification attached thereto. The Requisitions after being used for the purpose of record in the stores, are passed to the Cost Office.

Labour. It is essential that all time spent in the works should be accounted for. To this end, a Job Card or Operation Card is made out in readiness for the commencement of each job or operation detailed on the Works Order.

This card contains exact particulars of the work to be done, with the name of the department, name and works number of the workman detailed for the job, particulars of standard time if a bonus system is applying, and piecework prices if the work is to be so treated. The Works Order number will also be quoted.

The cards for all workmen in the department are usually placed in racks in readiness for the commencement of the work. Each man takes his card from the rack and presents it to a progress clerk, stationed conveniently for the purpose. The progress clerk writes or stamps on the card the exact time. The workman retains the card until the job is completed, when he again presents it to the progress clerk, who inserts thereon the finishing time and supervises the transfer of the completed work to "Inspection." The time elapsed between the commencing and finishing times is the time occupied on the job.

This system tends to prevent undue wastage of time as the job is normally charged with all time elapsed from the giving out of the work. The workman cannot, therefore, waste time to any appreciable extent without the fact becoming apparent from the figures of "time taken on the job." Similarly, in respect of every workman, the total of "time taken" on all jobs done by him in a wages period falls to be compared with his total attendance hours as shown by the Clock Cards or timekeeping records. Any abnormal discrepancy in the form of time not accounted for will, therefore, be exposed and explanation called for.

The Progress Department will, in the manner described, obtain accurate records of work done on production or Stock Orders under normal conditions. Work done under Standing Orders, or under abnormal conditions, require further consideration.

In many cases it is possible for the Progress Department to deal with Standing Orders in the same way as actual production and for the times occupied to be similarly recorded.

If this is not possible or convenient, it will be necessary to issue some form of Time Card to every individual who is not wholly occupied on definite production orders. Adequate supervision will need to be exercised and the workman will give, on the Time Card, details of work done and time occupied thereon, and the foreman's signature will be obtained to the record.

When producing conditions become abnormal by reason of some occurrence in the works, the progress clerk must record on the card the nature of the occurrence and the amount of time lost owing to it.

A breakdown in some part of the plant, for instance, would inevitably hold up the work of one or more workmen. They would take their cards to the progress clerk for the necessary explanatory record to be inserted.

The Progress Department should watch closely the delivery of materials against orders issued, and should thereby avoid, so far as is possible, any delay arising from a shortage or absence of required materials.

If such a delay does arise, the foreman will report to the progress clerk, who will record the facts as above on the cards of the workmen concerned.

A rule is frequently made that a special "delay report" shall be furnished by the foreman or superintendent of the works section concerned where production is held up for any reason.

The report will state the nature of the delay, its cause, its duration and the names of workmen concerned, with particulars of the job numbers on which they were engaged.

In some cases a breakdown in plant is made the subject of a special Breakdown Report, other delays being dealt with as indicated.

The report is made to the Planning Department, a copy being sent to the Cost Office. The Cost Office will see that the details of the report agree with the delay allowances recorded by the progress clerk on the Job Cards.

The Planning Department will make any necessary investigation as to the causes of the delay, and if the interference has been serious may modify the programme to meet the need.

The Progress Department will keep in chart or other convenient form, a full record of work being produced in the factory.

The cards in respect of completed jobs or operations will be passed to the department daily by the progress clerk, and will be marked as completed on the chart. The cards will then be passed to the Cost Office.

At intervals, the Progress Department will obtain a report on the uncompleted work going through, so that it may have full information as to the whole of the work involved in the programme and may see that production is being carried out within the time limits laid down for it.

INSPECTION

The Progress Department will make arrangements for the inspection and "passing" of the work on completion. A separate "viewing section" will usually exist through which the work will pass. The Job Card concerned will then bear the initials of an official of the viewing section. In some cases, the viewing section is replaced by a number of inspectors who view and pass the work before it leaves the hands of the operator.

SCRAPPED WORK

The question of work scrapped in course of production is also a matter for the Progress Department.

Definite rules should be made on the question, among which it should be laid down that—

(1) The matter be reported at once to the progress clerk who will arrange for immediate inspection of the work and for a note of the time occupied thereon to be inserted on the Job Card in question.

(2) A report should be made by the foreman or superintendent of the section. The report will contain adequate reference to the Requisition number and the Job Card or Works Order number in question. The cause of the scrapping (e.g. faulty material) should be stated so far as is possible and the report made in duplicate to the Progress Department (one copy being passed to the Cost Office).

The report will bear a serial number for identification purposes.

(3) The foreman should obtain authority (from Progress Department or from inspection as may be arranged) to requisition a further supply of material from store as soon as possible.

It will be seen that the Planning and Progress Departments, the activities of which in practice are frequently carried out jointly, are responsible for—

(1) Creating the programme of production.

(2) Seeing that the programme is adhered to, delay being avoided so far as possible.

(3) Bringing into existence by means of material requisitions and Job Cards, the records of what has actually been done. The records are under the definite supervision of the stores staff and the progress and inspection clerks respectively.

ASSEMBLING THE DETAILS

The assembling of the details from these records is the work of the Cost Office.

The routine of the costing system has to be so designed that the Cost Office comes into possession of what information is necessary for its operation.

In regard to material and labour, such information may be summarized as follows—

Materials.

Copy Goods Inwards Voucher.
Invoices (by co-operation with the Buying Department).
Requisitions for issues from stores.
Material Specifications for all Works Orders.
Details of materials scrapped per Scrap Reports.

Labour.

Original time records by way of Clock Cards or Timekeeper's Sheets.
Piecework sheets or books.
Job Cards or Operation Cards.
Time Cards in respect of work other than production by Works Order.
Delay Reports with time allowances.
Details of labour expended on scrapped material (per Scrap Report).

With this information available, the Cost Office is in a position to maintain all or any of the following records—

(1) Stores Ledger.
(2) Wages Abstract.
(3) Labour unchargeable, e.g. idle time.
(4) Operation costs.
(5) Component costs.
(6) Works Order Cost Summaries.
(7) Materials Abstract.
(8) Cost of scrapped work.

We will deal with these in order—

(1) **Stores Ledger.** The normal method of operating this has been dealt with in Chapter IV.

Pricing of Requisitions. In order that the details of the requisitions may be incorporated in the costing records, values must be placed on the detailed items contained in the requisition. Where material used has been recently or specially purchased, and can be so identified, no difficulty arises. The invoice cost is taken as the appropriate "rate" for pricing. Where the material is used out of stock, purchases of which are continually made at varying prices, an average cost is obtained from a computation of the total cost of the whole of the purchases over a given period. Such average is then used as the appropriate rate.

Where the stock from which the material is drawn was not purchased recently and the current market price differs appreciably from the actual purchase cost, difficulty does arise and there is considerable difference of opinion as to the basis of valuation to be adopted. It is argued on the one hand that the valuation of materials at other than their cost price renders necessary complicated adjustments to enable "materials used" to be balanced with financial figures of purchases. Against this reasoning is the fact that where market prices have fallen, the obtaining of orders may be prejudiced by the retention in estimates of material values higher than market prices.

In practice it will be found that circumstances generally provide the solution to the problem.

Where in a particular trade, selling prices are more or less fixed for the trade as a whole, materials will fall to be valued at market prices, since selling prices will normally have been so based.

In result, therefore, the manufacturer under such conditions gains an extra profit if his purchasing has been made at prices lower than market prices, while he suffers a reduction of profit if his materials have been bought at prices above market.

Where the product is not subject to the restriction of a fixed selling price, other considerations apply.

A specialty product can generally command a selling price in accordance with the full cost of production. In other cases, the extent of trade competition must be taken into account.

Generally speaking, it may be said that where the buying is done efficiently, cost prices of materials will be a satisfactory basis for cost records.

Where serious errors in buying have been made, it is not usually possible or advisable to pass on to the customer the cost of such errors. Any loss so incurred has to be treated as a reduction of gross profit earned.

This question will be settled in many cases by the process of periodical stocktaking, at which the inclusion of materials or components at the lower of cost or market value will bring matters into line with general conditions in the trade.

(2) **Wages Abstract.** The Cost Office will extract from the Job Cards and Time Cards weekly details of labour costs, analysed either over Works and Standing Orders or in the manner best applicable to the circumstances.

The analysis may be carried out separately for each department.

When completed, the total should be agreed with the total of wages paid, again dealing with departments separately if possible.

Discrepancies should be investigated, a check being made for this purpose of the total bonus and wages stated in the Abstract against each check number with the Wages Book details. This is necessary to ensure that the whole of the wages paid are accounted for.

Where it appears that a workman has recorded under Works Order or Job numbers, or under Standing Order numbers, only a proportion of the

WAGES ABSTRACT

WEEK ENDING .. . .. 194 ... **DEPARTMENT** . .. .

CHECK No.	ORDER No. W....					ORDER No. W...						TOTAL CHARGED				UNCHARGEABLE					WAGES BOOK TOTAL			
	Hrs.	Rate	Amount			Hrs.	Rate	Amount				Hrs.	Value			Hrs.	Rate	Amount			Hrs.	Amount		
			£	s.	d			£	s.	d			£	s.	d.			£	s	d.		£	s.	d

Separate schedules will be prepared in respect of Standing Order numbers

% to Total Wages

time for which he has been paid, the matter should be taken up and the facts ascertained.

It may emerge that an error has been made in the making up of the abstract and the necessary correction will be made. It will be remembered that in every department of the costing system, arrangements must be made to ensure that all necessary records reach the Cost Office. In furtherance of this, all recording documents should bear an identification number.

Job Cards or Works Order Cards received in the Cost Office will be checked off with a copy of the Progress Department's record of orders issued and in process during the week.

The form of Wages Abstract shown is a simple one, in which analysis is made under Works Orders and Standing Orders.

In the last columns are inserted the total attendance hours and the gross wages earned, from the Wages Book. The difference between these figures and the total of the recorded hours and wages in the individual columns will represent time paid for but not chargeable to any specific order.

(3) **Labour Unchargeable—Idle Time.** The details of such unchargeable time must be carefully examined.

The provision of Works Orders and Standing Orders should make it possible for labour to be chargeable almost entirely to one or the other.

An exception may occur in the case of a working foreman, some of whose time will be occupied in general supervision. Even in such case, however, there is no reason why a Time Card should not be made up with the time so spent recorded under the heading of "Supervision." In the same way, shop labourers and boys employed for sweeping up the shops and similar non-productive work can be given Time Cards.

It follows, therefore, that any time which it is impossible to record as chargeable, either to Productive Order or under some Standing Order heading, must represent a definite loss of time paid for. The term "idle time" is used to indicate this.

Attention must be given to this matter and in particular—

(*a*) The proportion of time so lost to total time paid for should be watched from period to period.

While a certain small percentage is allowable and expected, the disclosure of any considerable item should be followed up, as it may indicate the employment of men whose places could be filled with advantage by more willing workers.

(*b*) Where loss of time is shown to be due to occurrences in the works beyond the control of the workman, steps should be taken to avoid a recurrence of such happenings.

In this connexion the "delay" report previously referred to must be considered.

(4) **Operation Costs;** (5) **Component Costs;** (6) **Works Order Cost Summary.** These may be considered together.

According to the needs of the business, it may be necessary to maintain in the Cost Office records of any or all of the above.

The Wages Abstract will be made in every case in the way which will enable the greatest amount of desired information to be obtained from it.

From the form of Wages Abstract shown, Works Order Summary Cards could be written up from week to week, giving details of wages on each Order number until its completion.

Works Order No. 1659 *Customer's Ref.* S/L.T126 .....

General Description: 24 gross Special 2-way Taps (Brass) Ebony .. handles . . ..

Material Specification No. M1493

Date issued .. Jan. 13/1935. *Date completed* Feb. 11/1935.

Week ending	Material			Week ending	Labour			Remarks
1935	£	*s.*	*d.*	1935	£	*s.*	*d.*	
Jan 19	29	7	4	Jan. 19	4	16	11	Customer supplied pattern. Returned with completed order, 12/2/1935.
,, 26	10	2	5	,, 26	18	7	6	
				Feb. 2	11	16	2	
				,, 9	3	9	6	
	£39	9	9		£38	10	1	

SUMMARY:

	£	*s.*	*d.*
Material . . .	39	9	9
Labour	38	10	1
	£77	19	10
Addition for oncost .			
TOTAL COST .			

It will be seen that a summary of this nature will be of value where the production consists mainly of customers' special orders, the cost of fulfilling which has to be compared with quoted prices.

The summaries will be retained for reference if repeat orders or inquiries are received.

If records of operation costs are required, these may be obtained by separate abstract of the completed Job Cards if it is impracticable for the Wages Abstract to be designed with this object in view.

Where the production consists largely of standardized components, the records will be designed to give details of material and labour costs of each such component made from time to time.

Where possible, part lists should be in use, in which each component has a distinctive number and a standard description, e.g. the manufacture of motor-cycles will be carried out by reference to a series of Part Lists—each of which will contain under separate numbers its appropriate components.

In respect of each component, a Cost Card will be completed, e.g.—

Part No. E.16 *Unit.*
Component No. 19 12
Description .
Material Specification Ref.

Date	Qty.	Material			Labour			Date	Qty.	Material			Labour		
1935		£	*s.*	*d.*	£	*s.*	*d.*			£	*s.*	*d.*	£	*s.*	*d.*
Jan. 19	72	5	7	6	3	19	2								
Apr. 25	36	2	17	0	1	16	10								

In respect of each component cost, a unit of production is taken. This may be a single component or a dozen or a gross or whatever quantity gives a fair basis for costing record.

When the Wages and Material Abstracts are not designed to give the above information, the details will be obtained from the Requisitions and Job Cards, and columns will be included on the card for the necessary reference to these documents.

From such a component cost, the cost per unit of production, which will be stated as shown, can be obtained and compared with previous experience.

From the appropriate "Component" costs, a part cost can be similarly computed at any time by listing the separate costs of the various component "units."

Finally a complete cost can be obtained by aggregating the various part costs (which will include costs of erecting and assembling in addition to the making costs of components).

This method of presentation of costs has to be applied in some form where the undertaking comprises, in addition to the manufacture of completed products, the supply of spare or replacement components for those products.

(7) **Materials Abstract.** By methods similar to those applied to the Wages Abstract, the Cost Office will prepare weekly or at other convenient periods an abstract of materials used, obtained from the Requisitions or Stores Issue Notes. These details will be allocated to Works Orders or Job numbers in respect of production, while materials used on Standing Orders will be collected under appropriate headings.

MATERIALS ABSTRACT

Week Ending . ..

Order No. . ..

Reqn. No.	Amount			Reqn. No.	Amount		
	£	s.	d.		£	s.	d.

If Works Order Summary Cards are prepared, the details will be obtained from the above abstract.

If component costs are required, a further analysis of the requisitions will be made to furnish the necessary detail in the form in which it is wanted.

The requisitions will already have been compared with the material specifications applicable to the work in hand.

(8) **Cost of Scrapped Work.** As previously suggested, provision will be made for the furnishing of definite reports on work scrapped. The Report will contain details of materials involved and of labour expended thereon.

These items will be valued by the Cost Office and recorded on a Wastage Card, reference being made thereon to the scrapped work report concerned.

WASTAGE

Date	Report No.	Material Amount			Labour Amount		
		£	s.	d.	£	s.	d.

The totals over a period will give the cost in material and labour of work scrapped in process of production.

The Progress Department will have examined the nature of each case as it arose, and where the facts justified it, will have obtained Credit Notes, through the Buying Department, from suppliers of materials which had proved faulty.

The scrapping of work in production must not be confused with the necessary and recognized making of scrap which occurs in many processes, and is taken into account when estimates are prepared.

Manufacture from metal in the form of a blank nearly always involves the cutting away of a certain quantity to reduce the blank to its required size or shape. Such "cut off" metal is generally scrap and is considered when the estimates of material required for the job are framed.

The point is usually treated as follows—

Cost price of the blank of metal
Less value of metal cut off and consequently unusable (at scrap price) . . . .

Difference being the estimated cost of metal used on the job . . . . . .

---

1. What are the functions of "Planning" and "Progress" Departments in a manufacturing organization?

2. "Works Orders" and "Stock Orders" have place in a production programme. What are their uses?

3. By what method are records obtained of labour and material expended other than on "Production Orders"?

4. What is the use of a "Wages Abstract"? How is it compiled?

CHAPTER VII

THE GENERAL NATURE OF ONCOST

In the third chapter the nature of oncost was considered in very general terms. It was there pointed out that the description "oncost" is applied to those expenses incurred in carrying on any business, which are not direct charges of material or labour in production.

The terms "overhead" and "burden" are also used in the same connexion.

The carrying on of any producing business involves revenue outlay under three heads—

Materials consumed.
Wages expended.
Expenses incurred.

From the financial books of the concern, periodical accounts are prepared in which the Trading Account forms a general summary of "Materials and Wages," while the remaining expenses incurred are dealt with under convenient classifications in the Profit and Loss section of the Account.

The student has learned that for the purposes of efficient costing, it is usually necessary to obtain a more accurate analysis of the total outlay.

We have seen that a costing system must enable the general item of "Materials" to be recorded as—

Materials used in Production.
Materials wasted or scrapped.

Materials used on Maintenance or Establishment Services under "Standing Order" numbers.

Similarly, the total of wages paid will be allocated to—

Wages on Production.
Wages on Maintenance or Services.
Wages paid for idle time.
Wages on scrapped work.

If the debit side of the Trading and Profit and Loss Account were redrawn to give effect to these distinctions, we might have—

TRADING ACCOUNT

Materials used in Production.
Wages expended on Production.

PROFIT AND LOSS ACCOUNT

Materials wasted or scrapped.
Wages on scrapped work.
Idle time paid for.
Materials and wages expended on Maintenance or Services.
All other expenses.

It is assumed that wages and materials expended on capital outlay have been extracted and separately treated.

The items now appearing under the heading of "Profit and Loss Account" fall for consideration as "Oncost."

Oncost may be conveniently divided into—

Works Oncost which comprises those indirect expenses incurred in relation to the factory or to the work of production which takes place therein.

General Oncost which includes all expenses of a general nature incurred in maintaining the remaining portion of the organization, e.g. Administration and Office, Selling and Distribution, Financing and Professional Charges.

The following is a representative list of items which fall within the general classification of "Oncost."

WORKS ONCOST

Factory Rent.
,, Rates.
,, Power.
,, Lighting and Heating.
,, Insurance.
,, Cleaning.
Manufacturing Expenses in Consumable Stores (e.g. oils, files, cotton waste, etc.).[1]
Maintenance of Plant.
Maintenance of Works Fixtures.
Experimental Work.
Pattern Maintenance.
Tool Replacements.
Depreciation of Plant and Works Fixtures.
Factory Supervision Wages.
Scrapped Work.
Idle Time.
Overtime.
General Labouring.
Depreciation of Works Buildings.

---

[1] Such stores can, of course, be treated in the same way as other materials, and by means of requisitions and complete stores records allocated to Works Orders in detail. In most cases, however, the method is adopted of including such items with oncost expenses, thereby providing for their distribution over production generally.

Management (part).
Patent Fees and Charges.

GENERAL ONCOST

Administration and Office

Timekeepers.
Storekeeping.
Drawing Office.
Cost Office.
General Office (including Staff Salaries).
Office and Stores Lighting and Heating.
,, ,, ,, Rent.
,, ,, ,, Rates.
,, ,, ,, Insurances.
National Insurance.
Office and Stores Cleaning.
,, ,, ,, Repairs and Maintenance of Equipment.
Stationery.
Postages, Telegrams, and Telephone.
Welfare Canteen, etc.
Depreciation of Buildings (Office and Stores).
Management (part).

Selling and Distribution

Travellers' Salaries, Expenses and Commissions.
Other Commissions.
Agencies.
Advertising.
Delivery.
Cash Discounts.
Bad Debts.
Exhibitions.

Financing and Professional Charges

Bank Interest and Charges.
Legal Expenses.
Audit and Accountancy Fees.

It will be noted at once that some of the items enumerated will form the subject of Standing Orders or Permanent Orders previously dealt with.

By means of the Standing Order allocations, materials and labour expended on these items will be charged appropriately and the total so expended over a required period will be ascertainable from the periodical summaries.

Before dealing in some detail with the individual items making up the list given, we shall do well to consider what are the objects of costing in regard to oncost.

These may be stated as—

(1) To ascertain the amounts expended under each heading.

(2) To ensure so far as possible that all expenditure of the nature of oncost is correctly recorded as such.

(3) To provide by means of adequate records that estimates for work will be sufficient to recover in the selling price of each order completed, an equitable proportion of the total oncost, with the result that, provided a sufficient turnover is achieved, the whole of the oncost will have been recovered.

It has been emphasized frequently that costing is performed by a process of analysis. It will be obvious that the analysis may be carried out to what extent is deemed necessary or worth while in the circumstances.

The analysis must be accurate throughout. A simple illustration will be of use—

(*a*)

£
If Productive Wages = 10,000
and Total Oncost = 10,000
Oncost = 100% of Productive Wages.

(*b*) If, however, the analysis has not been sufficiently accurate and, in fact, the item stated as £10,000 Productive Wages includes £1,000 of Oncost, the correct figures should be—

£
Productive Wages = 9,000
Oncost = 11,000
in which case
Oncost = 122% of Productive Wages.

Let us, for the purpose of example, assume that the percentage of oncost to productive wages is consistently correct in all classes or sections of work undertaken by the concern.

On this assumption, if the appropriate percentage is added to the productive wage cost of each order executed, the oncost total should thereby be recovered in the Sales.

Taking the figures above, it will be seen that if 100 per cent is applied as indicated in (*a*), the amount recovered in respect of oncost will be £9,000 only, whereas the total of oncost expense is £11,000 (*b*).

Faulty analysis is in this case responsible for the non-recovery of £2,000 in respect of oncost expense.

The student must not lose sight of the fact that the recovery of oncost is dependent on the sale of a minimum output. The point may be illustrated generally as follows—

	£
Oncost to be recovered over a given future period (say 1 year)	10,000
Estimated Sales to be made in that period .	50,000
Productive Wages to be expended (30% of £50,000)	15,000

% of Oncost to Productive Wages = 66⅔%.

Consequently, if during the year—

(*a*) Sales are made of £50,000, and
(*b*) Oncost expense amounts to £10,000,

the addition of 66⅔% to the amount of productive wages involved in each item of sales output will result in the recovery of the whole of the oncost.

If, however, the turnover attained is £45,000 only, the oncost recovered will be

$$\pounds\frac{66\frac{2}{3}}{100} \times \frac{(30 \times 45{,}000)}{100}$$

$$= \frac{2}{3} \text{ of } \pounds 13{,}500 = \pounds 9{,}000 \text{ only.}$$

Because the turnover has proved lower than that estimated, the costing will have failed to recover £1,000 of the oncost total.

The percentage which would have recovered the whole of the oncost expense may be calculated as follows—

	£
Estimated Turnover	45,000
Oncost to be recovered.	10,000
Productive Wages (30% of £45;000) . .	13,500

% of Oncost to Productive Wages = 74·74%.

This aspect of the oncost problem will be dealt with more fully in a later chapter when the question of what is termed budgetary control will be discussed.

It becomes necessary now to examine the list of usual oncost items in order to see how the recoverable amount may be ascertained. We will deal with the items in order.

WORKS ONCOST ITEMS

Factory Rent is usually calculated as a proportion of the total rent paid, based on the areas comprised by the works and the office and stores respectively.

Where special circumstances exist, these will be considered in making the allocations—e.g. if the factory is a solidly built brick structure, while the offices are housed in erections of a less permanent kind, the total rent paid may be distributed according to the capital values involved.

Factory Rates. The allocation will be made on the same general lines as those which govern the item of "rent."

Factory Power. The use of separate meters will enable the cost of gas or electric current consumed to be allocated correctly.

It is sometimes possible and worth while to arrange for the separate recording of the power consumed by individual machines, or groups of machines, as the comparative figures may be of considerable value in deciding what types of machines shall be installed when additional outlay in this direction becomes necessary.

Similarly, a comparison of the current consumption of similar machine groups may point to the need for a works adjustment which may save on current cost.

Where gas or oil engines are installed, it is frequently of considerable value to be able to assess separately the cost of running each.

It may be noted in passing that in many up-to-date plants, operated by electric power, it is now usual to operate each machine by a separate motor; this procedure tends to economy by being able to shut off machines not required and also avoids much dislocation in the event of a mechanical breakdown.

The separate record of current consumption is of particular value when a department contains high powered and especially expensive machines for the carrying out of an important process.

Similar considerations apply to a department which in addition to carrying out operations or processes as part of the general manufacture, also supplies a finished product direct to outside customers. An example of this is an enamelling department, which enamels articles for outside customers in addition to what is required as a process of manufacture.

Where it is not considered possible or worth while to maintain the separate records suggested, some more arbitrary method of apportioning the total cost of power must be applied.

In some cases, the capital values represented by each machine, group of machines or departmental plant may give a sufficiently close approximation—the values obtained being divided proportionately over the total power bill.

Consideration must, however, be given to special circumstances such as the fact that some departments or machines operate a night shift, or that some high powered machines only function irregularly when the programme of manufacture calls for their use.

Departmental or section output value is sometimes used as the basis for allocating expenses and this may be applied to power costs in some cases.

This method can in any case apply only where turnover is generally normal from period to period. Where, owing to change of customer, the manufacture of new and different lines, or any similar reason, the character of the output of the factory is liable to alter considerably, it will be obvious that the relative output of different departments or sections may show great variations from period to period.

It must be emphasized that serious risks attach to any arbitrary method of apportionment. A wrong basis may result in a partial non-recovery of the oncost, while an increased charge to obtain safety in this direction may seriously increase cost estimates and so affect turnover adversely.

Factory Lighting and Heating. Where possible, separate meters should be installed to provide for a division of the total cost between factory on the one hand, and warehouses, offices, etc., on the other.

The observations made in regard to power apply generally to a consideration of factory lighting and heating. It is sometimes possible to use the number of lighting points in each department or section as the basis for apportioning the charge for lighting current.

Factory Insurance. This subdivision should embrace insurance against fire of works buildings and of plant and tools (insurance of trading stocks being dealt with as a general oncost item).

Where works buildings are covered specifically against damage by storm and tempest, the premium cost should be included in factory oncost.

Factory Cleaning. The cost of this item can be ascertained easily. The greater portion will arise on Standing Order numbers, having been charged thereto by analysis of wages and material under the heading of "Works Sweeping and Cleaning" or a similar designation. Some addition to this may arise if outside labour is also employed. The cost of the periodical limewashing or whitewashing of the works will be included under this head.

Consumable Stores. As already pointed out, it is usual to treat the miscellaneous items which arise under this heading by way of works oncost rather than by way of direct cost charge. If a Standing Order number is allotted to this expenditure, all purchases which are to be included can be so designated when invoices are examined.

If this procedure is adopted, records of issues from stores will not be maintained in respect of these items, it being left merely for stores to exercise some practical control by criticism and report to prevent avoidable extravagance in their use.

The total cost under this heading over a period will be ascertained in the usual way by bringing into account opening and closing stocks.

Maintenance of Plant. This will include the cost of outside purchases of repair parts, etc., and of repair bills paid to outside contractors in addition to the cost (in labour and material) incurred within the works. The wages of the millwrights or repair gangs will form a large portion of this cost, while belting replacements will also be costly.

Some portion of the cost of consumable stores will generally need to be allocated to plant maintenance if accuracy is to be obtained.

Maintenance of Works Fixtures. Machines and fixtures are frequently taken together as "plant," but it is sometimes advisable to separate expenditure relating to benching, work racks, drying frames, etc., where the usage of these is heavy.

Experimental Work. In some trades, the production of a new or substantially altered product is attended by considerable expense, apart from the definite costs of drawings, prints and new patterns. It will be appreciated that the first models of a new line cannot generally be the subject of a Works Order for normal production, but must be built up carefully and probably slowly by workpeople appointed to the task. What will ultimately be a repetition piecework job will have to be the subject of expensive day work in its early stages. Further, it is likely that some considerable amount of labour and material will be expended with no result on rejected first models.

Opinions differ considerably as to the method of treatment of this class of outlay, but it will be agreed that, however treated, its total cost should be ascertained. It is advisable to allocate a separate Standing Order number to this expenditure.

It must probably be left for circumstances to decide whether, or to what extent, the cost of experimental work should be treated either as an oncost and so recovered in turnover or as a development cost in the nature of goodwill.

It is necessary to consider the matter from all points. In the first place, since an article cannot become a production item in many cases without the preliminary experimenting and the making of models, there is good ground for the argument that such development cost must be regarded as part of the cost of production by way of apportioned oncost charge on each article produced. If this view is taken, such an amount must be included in oncost per unit or standard quantity or weight of article as will recover the total experimental cost when an estimated total output of the article has been sold.

In the second place, it is argued that experimental or development outlay should be regarded not as a revenue cost but as capital expenditure, the spending of which increases the goodwill value attaching to the business. The new lines, or new models brought into existence, are presumed to justify the increased capital value.

It is obvious, however, that considerable danger attaches to such an automatic increase of capital values. Frequently, and particularly in the case of new models, a new or improved line reduces the goodwill value of an existing line. Further, a new line may itself prove a comparative failure and the apparent increase in goodwill due to its creation may never exist in fact.

It follows, therefore, that the practical possibilities must govern policy in this matter to a large extent.

Where it is possible to recover all or any portion of development cost by way of inclusion in the price of the article, such charge should be made.

Where, owing to competition or for any other reason, such recovery is not practical, the concern should see that a sufficient appropriation from profits is made against the capital value appearing in the Balance Sheet (as experimental outlay, or as an addition to goodwill) to reduce such capital value to a figure which can be justified by the facts.

Summing up, therefore, regard should be had in the first place to the practical position. What recovery is possible should be obtained in the price of the sold output and so much of the remainder should be written off as a charge against profit obtained as is not considered to be represented by actual value.

Pattern Maintenance will include the cost of repairing patterns and of making temporary patterns, templates, etc., which will not have any permanent value.

It is a frequent practice in some trades for a pattern or patterns to be made for the purpose of producing a customer's special order. The customer in many instances, either pays for the cost of patterns, in which case no point arises, or agrees to contribute a certain sum (say one-half) to the pattern cost. In other cases, no special arrangement is made, but the order is accepted at a price which includes a special oncost charge for patterns.

In this latter event, the manufacturer will budget either to recover the whole pattern cost on the order in question, or to rely for a further recovery on a future repeat order for the same goods. In many cases it is arranged that the patterns become the customer's property.

It should be realized that whatever pattern cost of this nature is not recovered from the customer in the sale price of the goods is in the nature of an actual loss which must either be borne by the manufacturer out of his normal profits or treated as a general works oncost for recovery over the whole of the turnover.

In order that the position shall not be indefinite, it is a good practice to capitalize in Pattern Account only such outlay as represents an actual increase in the value of patterns and to charge to Pattern Maintenance for consideration as above all other pattern outlay.

Tool Replacements. The value of tools generally renders it advisable to treat this item separately by way of separate cost, rather than as a portion of "consumable stores." Outlay on tool replacements will be obtained by charging to a Standing Order number, all tools or materials for making tools obtained from stores by requisition and all labour expended thereon (including tool repairs) per the wages analysis.

Depreciation of Plant and Works Fixtures. While these may be dealt with as separate items, it will suffice for our present purpose to treat them jointly. Depreciation may be assessed by any one of various methods.

The following are the usual methods available—

(*a*) By fixed instalments—writing off the cost of the item (or the cost less its calculated residual value) over its estimated life, by equal yearly instalments.

(*b*) By a reducing yearly percentage charge, under which method the amount to be written off becomes less year by year, while the cost of repairs necessary to maintain the efficiency of the plant tends to increase. The effect generally is to make a more equal total charge over the years of life of the plant to cover repairs and depreciation.

(*c*) By the Annuity System, under which the capital expended in the purchase of plant is regarded as earning a normal fixed rate of interest which is added to the capital value yearly, the total being depreciated by a yearly amount, calculated by the fixed or reducing instalment methods.

(*d*) By revaluation—under which the plant, properly inventoried, is revalued as to each item at each period end, the total reduction in value so obtained giving the amount of the depreciation charge.

The operation of a Plant Register (see Chapter XV) is to be recommended, as its use tends to a more certain knowledge of the details of the total plant value, with correspondingly greater accuracy in calculating the depreciation necessary.

In practice the reducing instalment system is most generally applied to plant and machinery, for the reason explained in (*b*) above.

For oncost purposes, it is necessary to calculate (by whatever method is adopted) the cost of depreciation based on the value of the plant at the commencement of the period. The figure so ascertained will be included in works overheads to be recovered by way of proportionate charge in each item of factory output.

Factory Supervision Wages. This item will include the cost of works foremen, superintendents, inspectors and similar persons whose salary or wages are not specifically costed to a Works Order or Job number.

In the case of working foremen, some portion of their cost will have been charged to specific orders, while the remainder will be treated as oncost. The total amount arising under this heading will be obtained by charging to an appropriate Standing Order number.

Scrapped Work. The cost of scrapped work will be made up of—

(*a*) Cost of material scrapped either through faulty workmanship or owing to some inherent defect in the material.

This value will be equivalent to the excess cost of material expended on the job, less any credits obtained from manufacturers, and also less the value as scrap (if any) of the excess material in question.

(*b*) Cost of labour spent on scrapped material or labour wrongly directed, e.g. where Works Order labour instructions have not been carried out correctly and in consequence the job is not correct in result.

The total periodical cost of scrapped work should be subject to frequent and severe criticism.

Standards which should not be exceeded should be created and any excess cost over the fixed standard should be investigated.

Excessive scrap may arise if material supplied is not suitable for working or if workpeople are careless or unfitted for their particular jobs.

It quite often happens that an apparently cheaper source of material supply causes a greater material cost by reason of its unsuitability for the processes to which it has to be subjected.

The correct degree of hardness of steel is an example which frequently causes considerable difficulty.

Below is a record of scrapped work with a relevant detailed cost.

SCRAPPED WORK

STANDING ORDER No. 68

Date	Refce.	Material			Labour			Date	Refce.	Material			Labour		
1935		£	s.	d.	£	s.	d.			£	s.	d.	£	s.	d.
July 6	W.O. 1882	4	3	7	1	15	3								
" 9	W.O. 1527		4	3		1	5								
" 26	S.O. 36	7	19	6	1	15	0								

COST CARD

WORKS ORDER 1882

Date	Refce.	Material			Labour			Date	Refce.	Material			Labour		
1935		£	s.	d.	£	s.	d.			£	s.	d	£	s.	d.
June 16	R. 1615	8	8	5											
" 27	R. 1851	5	6	10											
" 22	W.				1	13	8								
" 29	W.				1	10	6								
July 6	Transfer S.O. 68	4	3	7	1	15	3								

(Red figures denote deduction.)

Idle Time. It is suggested that the cost of idle time should be ascertained as a separate item where possible in order that its arising may be valuably criticized.

The method of arriving at the details will depend upon the recording systems in use.

Where detailed Time Cards (in addition to Clock Cards) are in operation, all time paid for which is not accounted for on the Time Cards will be regarded as idle time and will be charged to a Standing Order Card under that heading.

Where time standards for jobs are in existence, time taken in excess of the standard will be similarly charged.

In the same way, time lost by reason of a plant breakdown or for other similar reason should be so described on the employee's Time Card and the cost thereof charged as idle time.

As previously pointed out, all such incidents should be the subject of criticism at the time of their happening and any necessary action taken at once to prevent a recurrence.

In addition to this examination of the detail, the total cost of idle time, gathered under the appropriate Standing Order numbers, should be considered generally, and if possible compared (as a percentage of wages paid) with any standard agreed as the result of experience.

Other items which may for this purpose be treated as idle time are—

(1) The cost of day work paid over piecework earnings where, either through lack of work or inefficiency of workpeople, the piecework earnings have failed to reach the fixed minimum rate; and

(2) In the case of learners the excess day work paid over piecework earnings during the period of instruction.

Overtime. It is particularly important that the cost of overtime should be made available by separate allocation to a Standing Order number under this head. Overtime usually proves to be an excess cost which cannot be recovered from a specific customer, arising as it does from circumstances within the works with which no customer is concerned.

Pressure of orders is naturally the most frequent reason for the existence of overtime, but this pressure may itself be due to the lack of particular items of plant or to some disproportion in the plant equipment. It may be in such cases that the recurrence of expensive overtime costs points to the need for the acquisition of further plant or to some alteration in existing lay-out.

Looking at the matter practically, it must also be realized that employees favour overtime, and where strict piecework or time standards are not in existence, or supervision is weak or insufficient, there may be a tendency to slackness during the ordinary hours (which itself may cause expensive idle time) in order to create the need for higher paid overtime.

The excess cost caused by overtime has proved surprisingly high in cases where its cost has been ascertained and very definite economies have resulted from serious consideration of the matter.

General Labouring. This is another item which well repays the separate ascertainment of its cost. Some cost must arise in every works in respect of work of this general nature, such as moving work in progress from stores, the gathering up of accumulated swarf and scrap and other similar necessities.

A consideration of the facts in conjunction with the figures of cost may, however, point to possible economies and will at any rate enable any tendency to increase the cost to be checked.

Depreciation of Works Buildings. This heading is not intended to cover provision for redemption of leaseholds (which will be discussed later), but the inevitable cost by usage of all works buildings. It will be understood that in spite of periodical expenditure on repairs, the life of all buildings is limited.

Based on the estimated life of the buildings, which will depend on the material and method of their construction, a charge should be made (to form part of the factory oncost) which shall in effect provide an accumulated profit balance at the end of the useful life of the buildings, which can be appropriated for their replacement. In practice, of course, the replacement will be a gradual process and may itself be obscured by earlier expenditure on alterations or extensions to meet the demands of expanding business.

Management. Salary paid to any person directly concerned in works management will be included here. The case of a Managing Director or similar official may require special treatment. This will depend entirely upon the activities of the person concerned. If he devotes any appreciable portion of his time to matters within the works (e.g. technical or supervisory) a corresponding proportion of his remuneration should be allocated to factory oncost, the balance being treated as general oncost.

Frequently, the fixed remuneration paid to Directors is augmented by bonuses payable out of profits at the end of the trading period. Opinions differ as to the correct treatment of such bonuses.

It is suggested that where such bonus is paid under a definite agreement between the individual and the company, some provision should be made to cover the estimated bonus which will ultimately be payable, such provision being included as management and allocated to factory and general oncost as stated above.

Where, however, the bonus is dependent upon a vote of the shareholders and does not arise from any definite obligation on the company, it is suggested that such bonus need not be taken into consideration as an item of oncost but should be treated rather as an appropriation of profit.

Patent Fees and Charges. The charges under this heading will be in respect of all costs in connexion with patents, except the costs of obtaining provisional and complete protection for live patents which will be treated as capital additions to the value of the asset "Patents."

This allocation should follow that made in the first place when the Patent Agents' Accounts are dissected for Purchase Day Book analysis.

The portion to be treated as oncost will include—

Renewal fees.
Search fees.
Costs in connexion with patents, which for any reason are not carried to completion.

Any writing off which may be considered necessary in respect of patents which have ceased to operate, such writing off reducing the asset value.

GENERAL ONCOST ITEMS

(A) ADMINISTRATION AND OFFICE

Timekeepers. The cost under this heading will probably be limited to salary paid to the individual or individuals concerned, these items being collated at intervals under an appropriate Standing Order number.

Where an individual combines the duties of timekeeping with some other duty such as assisting in stores, the necessary allocation should be made by dissection of his Time Card, this being strictly kept for the purpose.

Storekeeping. A Standing Order number under this head will provide for the collection of all appropriate cost. Where works labour other than the recognized storekeeping staff is recruited to help in the stores, the Time Cards should provide the information necessary to enable the wage cost to be correctly allocated.

Drawing Office. Salaries paid to Drawing Office staff, together with the cost of all materials purchased for its use, will be included here.

Cost Office. The cost of all labour employed herein will be gathered under the appropriate Standing Order number, as will all stationery, files, etc., purchased for its use.

This cost will also include the printing or purchase of records used in the stores, e.g. Bin Cards, Goods Inwards and Outwards Books, etc.

General Office (including Staff Salaries). The details of this charge will have been gathered by periodical analysis of the Salaries Book totals —after excluding items dealt with separately under other headings.

Office and Stores Lighting and Heating. The charge under this head will have been found as suggested when discussing the lighting and heating of the factory, either by separate lighting meter registration or by some method of allocation of the total cost, according to the circumstances of the case.

Office and Stores Rent; Office and Stores Rates. The ascertainment of these costs has already been discussed when considering these items in relation to the works portion of the building.

Office and Stores Insurances. This should include insurance of stock in trade and insurance of buildings occupied by offices, warehouse and stores. The latter will have been arrived at by some arbitrary method (e.g. area occupied) if it has not been possible to obtain separate policies for each block of buildings. With regard to insurance of trading stocks, it is very necessary to see that full insurance cover is provided against damage to stocks. Any shortage in insurance (known as under insurance) may prove expensive if a claim should arise, as only partial repayment for loss will be made if the subject-matter of the insurance is not fully covered.

Insurance cover under the Workmen's Compensation Acts will be provided automatically and based on wages paid, the charge being included under the above oncost heading.

Insurance against Loss of Profits (or Consequential Loss). Where a policy exists to cover loss arising (by reason of a fire) during the period of re-establishment of the business after the fire (known as the period of indemnity) the premium paid under the policy will usually be included in general oncost.

For income tax purposes, a trading concern is allowed to choose between two methods of treating the premium—

Under (1) the premium is allowed as a charge against profits for income tax, on condition that in the event of a fire and resultant claims under the policy, all gains obtained as the result of such claims will be brought into profits for income tax assessment.

Under (2) the premiums are disallowed for income tax (i.e. not allowed to be charged as business expenses) while any sums obtained as the result of claims under the policy are similarly excluded from profits.

It is usual to find the option exercised in favour of method (1), and in such case the premium should be included with other insurances as an item of general oncost. If method (2) is adopted, the premiums need not strictly be treated as oncost.

It may be pointed out here that protection under a Loss of Profits Policy is in no degree a substitute for ordinary insurance against loss of assets by fire, the latter requiring to be covered in addition.

A Loss of Profits Policy in its usual form covers—

(1) Loss of profits during the period of indemnity succeeding the fire.

(2) Loss incurred in respect of Standing Charges,

e.g. rent, rates and other expenses which may occur during the period following the fire, although no profitable trading may be possible in that period.

(3) Extra working costs incurred by reason of the fire during the period of indemnity. These may arise, e.g. by the need to occupy additional temporary premises during the rebuilding of those which have been damaged, or by reason of the need to remove stock in hand to temporary premises.

Since average is applied to this class of policy, it is particularly necessary to see that the risk is adequately covered in order to avoid the occurrence of a loss in excess of that which the policy covers.

National Insurance. It may be well to deal here with the items of Health and Unemployment Insurance, in respect of which the employing concern has to expend certain sums weekly on behalf of each insured employee.

Methods of book-keeping differ in regard to this item. In some cases wages and salaries are shown at their full figure of earnings, the expense shown under National Insurance comprising the employer's proportion only of the cost of the insurance.

In other cases, wages and salaries are shown at the net figure received by the employee, the charge for National Insurance being correspondingly increased and comprising the full cost of insurance contributions, by both employer and employees.

The first method is, of course, the more correct and the accounts should be framed if possible to show the figures in this way.

For purposes of oncost, the proportion of the expense borne by the employer should be included. In view of the difficulty which would arise from any attempt to separate the contributions in respect of costed "productive" wages from the remainder, it is sufficient to include the item as general oncost.

Office and Stores Cleaning. This will be the subject of a Standing Order number to which will be charged the cost of any time spent thereon by any works employee. In addition, the item will include any material cost, together with any casual wages paid to outside persons for such work.

It may be necessary to divide this cost between works and office and stores, by some method of apportionment according to the circumstances, if separate cleaning staffs are not employed.

Office and Stores—Repairs and Maintenance of Equipment. A Standing Order number should exist for this expense and all time spent thereon by the concern's own workpeople should be charged thereunder.

Materials used for this purpose should similarly be requisitioned under the appropriate Standing Order number, while payments to outside organizations for work done of this nature will be allocated in like manner.

Stationery. It is a usual and commendable practice to regard stationery when purchased as an expense and not as a material purchase. The effect of such treatment is to write off as an expense all stationery purchases and to ignore whatever stationery stocks may exist at the end of an accounting period.

A difficulty arises, however, when considering stationery as an item of oncost. Stationery purchases will have been made according to the needs of the business and in quantities governed by economic buying. In result, the purchases of one period may be greatly in excess of, or greatly less than, the normal consumption of stationery for such period.

It would not be correct, therefore, to include in oncost whatever amount happened to have been spent in stationery in any period, and some method of equalizing the charge should be employed.

In whatever way is possible under the circumstances, an estimate should be made of the usage of stationery in a normal period and this should be included in general oncost. Any tendency to increase the normal periodical expenditure should be noted and any necessary correction made in the estimate.

Postages, Telegrams and Telephone. Little difficulty will arise in regard to these items.

Careful comparison should be made of the figures obtained in successive periods in order that any tendency to increased expenditure may be criticized and either justified or avoided in future.

Welfare (Canteen, etc.). In these days, the welfare of the employees has a definite place in most undertakings. Canteens exist for the supply of food, and various social and sports activities are inaugurated.

In some cases these are self-supporting, the contributions of the workers, helped by a surplus from the canteen, sufficing to cover all expenditure.

The employer's share in such a case consists of granting the use of a part of the works buildings for canteen or other welfare purposes.

In many other cases, part of the annual cost falls on the employer, who either makes an annual grant to the Welfare Fund, or undertakes to make up any deficit on the year's working.

In this case, the employer's contribution falls to be treated as an item of oncost and should be included therein.

Almost without exception, any surpluses which may arise are left with the workpeople, and do not revert to the employer.

Depreciation of Buildings (Office and Stores). A fair proportion of the calculated depreciation on the whole of the buildings should be charged as an item of general oncost in respect of those buildings occupied by offices, warehouse and stores and similar portions of the organization. (See Depreciation of Works Buildings.)

Management Salaries. The portion of this expenditure to be included in general oncost is that which covers general and commercial management services as apart from works management dealt with under *Factory Oncost.*

Bonuses will be dealt with as previously outlined when this item was considered in relation to factory oncost.

(B) SELLING AND DISTRIBUTION

Travellers' Salaries, Expenses and Commissions. Amounts expended under these heads will be readily available from the books. For the purpose of calculation of the amount to be included in oncost, regard must be had to any changes in policy which may seriously affect the future costs of representation. If additional travellers are to be engaged, provision must be included for their probable cost.

Similarly, any alterations in the method of remunerating individual travellers must also be considered. While it will be comparatively easy in most cases to arrive at the probable cost by way of salaries and expenses, the item of commission may vary considerably. This difficulty must be dealt with in the best way possible in the circumstances.

Experience may have shown that the total cost of representation has always proved to be a certain percentage of sales, in which case (subject to any serious change proposed in selling policy) it may be of use to apply the percentage so ascertained to the turnover aimed at.

As often as possible, it will be well to compare the provision made for this item by way of oncost with the actual expenditure on representation for the same period. Steps should be taken where possible to rectify in the succeeding period any serious discrepancy which may occur.

If the period of oncost calculation is one year, it is suggested that at the end of each three-monthly period, the above comparisons should be made in regard to all items subject to serious variation.

Other Commissions. As previously pointed out, care must be taken to ensure that the provision for oncost covers all items of revenue expense.

It may be that commissions are paid to persons or firms in addition to the employed travellers or agents, and such commissions or similar payments will call for inclusion with oncost.

Agencies. Remuneration to agents will usually be paid in accordance with definite agreements executed. The remuneration may take various forms—

Commission by way of percentage on sales;
Retaining fee or contribution towards agent's expenses; or
A definite salary increasing when justified by results.

The object must be to include as an item of oncost such provision as should cover the anticipated cost.

Advertising. Some important questions need consideration in regard to this item. Advertising can take many and varied forms, while current expenditure in the case of catalogues may cover more than the period of account.

In some cases an allocation is made within the limits of which advertising expenditure must be kept. If this is so, the task of providing a figure for inclusion as oncost will be simplified.

In other cases a frequent check must be made to ensure that oncost estimates are covering actual expenditure and the estimates must themselves be prepared as carefully as possible by the aid of what information is available.

Some idea must be obtained of the policy which it is intended to pursue in regard to newspaper advertising, printed circulars or leaflets, catalogues, novelty gifts or any other form of appeal, and the probable cost of each computed.

Delivery. Delivery costs may comprise wages paid to messengers, with fares expended, together with the cost of running delivery vans if they are used. If motor vehicles are used for delivery purposes, it will be advisable to gather under a separate Standing Order number all running costs, repair charges, etc., incurred in connexion with them. The cost would include the wages of drivers and assistants. The costs of maintaining delivery cycles could be recorded also with advantage.

Cash Discounts. Oncost should include provision for cash discounts to be allowed on sales. From figures of previous periods it will be possible to arrive at a normal "experience percentage" which cash discounts have borne to sales.

An application of this percentage to anticipated turnover, coupled with a frequent comparison of actual costs with the estimates, will prove the most practical method of dealing with the question.

The "experience percentage" may be arrived at as follows—

	£
Debtors at commencement of period taken .	8,700
Sales for the period	356,900
	365,600
Debtors outstanding at end of period . .	12,600
Value of accounts settled during period .	353,000
Value of discounts allowed during period .	9,728
= approx. 2¾%	

Bad Debts. This is an item in respect of which an attempt has to be made to include for oncost purposes a reasonable provision against loss.

It is not generally logical to make use of the figures of previous experience of loss by bad debts and it will usually be necessary to make a percentage provision, revising this at very short intervals in the light of losses actually incurred or anticipated, having regard also to any change in policy which may have the effect of increasing or reducing the bad debt risk.

In this connexion, a considerable extension of export business will usually carry with it some increase in the risk of bad debt loss, while curtailment of such business may often reduce the contingent risk.

Exhibition and Show Expenses. It is advisable to gather the details of this expenditure under a separate Standing Order number, and so to deal with it apart from the general question of advertising. The costs incidental to showing at an Exhibition may be considerable, while the value of the business resulting directly or indirectly therefrom is frequently a matter for speculation. It is, therefore, important that the costs of such efforts should be available for examination and criticism.

For oncost purposes, provision must be made for this expense by way of an estimate of what is necessary to cover anticipated expenditure. Frequent revision of the oncost figures, after comparison with actual costs or commitments, should be made.

(C) FINANCING AND PROFESSIONAL CHARGES

Bank Interest and Charges. Bank charges will comprise the normal costs of operating an account with the bank, viz. commission, cheque books, etc.

An estimate covering the expected cost under this heading will be included as an item of oncost and should be compared with actual expenditure as frequently as possible.

With regard to interest on bank overdraft, it will prove a difficult task in many cases to estimate the probable cost over a future period. The attempt must be made, however, and the estimate compared with actual costs as frequently as possible and revised if necessary.

It will be readily appreciated that loans, whether by way of overdraft from the bank or otherwise, fall into two classes—

(*a*) Loans for the financing of increased trade, or to provide capital not otherwise available for trading purposes.

(*b*) Loans for the purchase of buildings or other capital assets.

The view is sometimes expressed that the costs of borrowings for capital purposes at least should not be treated as oncost, as to do so would place the concern at a disadvantage as compared with a more fortunate competitor whose available capital is sufficient to avoid the necessity to borrow.

In fact, of course, capital usually expects to be remunerated by a fair rate of interest, whether such capital be obtained from shareholders in a limited company (in which case the interest return may be merged in dividends) or by way of borrowings from a bank or other financing party.

There is, however, an essential difference in the two types of capital source mentioned.

In the case of the proprietor or shareholder, the interest attaching to the use of the capital is payable only when sufficient profits have been made to cover the interest costs.

In the case of borrowings at defined rates of interest, the interest is payable as an item of definite expense, irrespective of the results of the concern's operations.

For this reason it is held that oncost must include any such definite payments for the use of borrowed money, whether by way of private loan, bank overdraft, mortgage or debenture interest, and that such items should not be left to be expended by way of appropriations of profit.

The general argument loses much of its force when it is realized that for practical purposes the question of *recovery* of oncost from the customer depends very much on trade conditions, competition and the like, which by fixing a selling price may prevent the full recovery of all expenditure, so requiring some portion to be borne by trading profit balances.

A comparison of the following hypothetical cases may help to make the point clear—

A, a manufacturer, has £20,000 subscribed capital—in regard to which no definite interest payments have to be made. The total oncost applying to a year's operating of his business is estimated as follows—

		£
Works Oncost		5,000
General Oncost—		
Administration and Office . .	£7,500	
Selling and Distribution . .	9,500	
		17,000
Total Oncost		£22,000

B, a manufacturer whose circumstances of trading are precisely similar to those under which

A operates, with the exception that his capital of £20,000 has been obtained as follows—

	£
Subscribed—with no definite interest payments attaching	2,000
Borrowed—from various sources at 6% per annum	18,000
	£20,000

His figures of oncost are—

		£
Works Oncost		4,500
General Oncost—		
Administration and Office . .	£7,500	
Selling and Distribution . .	8,920	
Financing	1,080	
		17,500
		£22,000

It is assumed that owing to some accident of circumstances, some greater power of organization or for some other reason, B can in fact include in oncost the interest he has to pay on borrowed capital, and yet not exceed the total oncost figures of A, his competitor.

If B should exclude from oncost the interest in question, and should base selling prices on the resultant reduced figure, the only certain effect would be that his profits for the year would be saddled with an appropriation of £1,080 in respect of financing costs, while greater profits might or might not have accrued from the reduction in selling prices.

It is likely that A would meet the reduction in selling price by B with a corresponding cut in price and would attempt to recoup himself by making savings in expenses where possible. This might have the result of reducing A's overheads to the same figures of cost as those of B, and if this should happen, B would then be at a distinct disadvantage with A, since any profits he might make would be subject to a first and definite charge of £1,080 for interest.

The whole question of the treatment of interest on capital for costing purposes will be further considered in a later section.

Legal Costs. Costs relating to debt collection, trade agreements, relations with employees and other matters of a general trade nature, should be included in any computation of oncost and estimates of the probable amount of such costs will need to be made and periodically revised.

On the other hand, costs relating to the acquisition of properties or other capital matters, should not be treated as oncost items, even if it has been decided to "write off" such items in the periodical accounts of trading.

Audit and Accountancy Fees. No special point arises in regard to these items. Any fees paid which are definitely of a capital nature (e.g. in connexion with the acquisition of the business or with an issue of shares) will be excluded from oncost—all other items will be included.

It is hoped that the above items of expense have been discussed in sufficient detail to indicate how figures of oncost are to be obtained, and to emphasize the need for all true revenue expenditure to be absorbed in some section of the oncost calculation.

1. What is "Oncost"? Distinguish between "Factory" and "General" Oncost.

2. Why is it necessary to distinguish accurately between "Productive" and "Unproductive" labour cost?

3. What points require consideration in connection with—
   Overtime,
   Idle time,
   Wastage due to scrapped work?

CHAPTER VIII

ONCOST: METHODS OF RECOVERY

WHATEVER methods are applied to oncost must fulfil two important requirements—

(1) It must be a matter of routine that an estimate of cost shall include a fair amount for works and general oncost; and

(2) It must also be a matter of routine that as part of a sufficient turnover, all oncost expenditure shall have been recovered at the end of a costed period, or alternatively that only such items as it has been decided to bear out of profits shall not have been recovered.

In short, the costing system must in addition to recording correctly the details of oncost expense during a period, also provide a means at the commencement of that period by which each item of turnover shall be made to recoup its due portion of oncost expense.

While in some cases this result can be achieved quite simply, a little consideration will serve to show that the recovery of oncost is a difficult problem in many cases.

Where the undertaking prepares and sells one product only, in respect of which a standard unit exists and is adhered to, the matter can be comparatively easy.

For example, a salt works can divide the whole of its expenditure as follows—

(i) Productive Labour, (ii) Works Oncost,
(iii) General Oncost.

and a standard unit of (say) 1 ton can be taken.

Assume the following figures—

	£
Productive Material . . .	*nil*
Productive Labour . . .	3,000
Works Oncost	1,000
General Oncost . . .	2,000

(with a weight produced and sold of 20,000 tons)

If a profit of 20 per cent on selling price is to be obtained—

	£
Total Cost and Oncost . .	6,000
Profit (25%)	1,500
Selling Price . . .	£7,500

or 7s. 6d. per ton

the selling price per ton being divisible as to—

	s.	*d.*
Productive Labour . . .	3	0
Works Oncost	1	0
General Oncost . . .	2	0
Profit	1	6
	7	6

It follows, therefore, that if the anticipated output of 20,000 tons is obtained and sold, and so long as the price is maintained at 7s. 6d. per ton, sums of 1s. and 2s. will be recovered on each ton sold on account of works and general oncost respectively.

If, therefore, the estimates of works oncost at £1,000 and general oncost at £2,000 are sufficient to cover expenditures in these directions, sales as stated above will fully recover such expenditure.

It will be seen from this hypothetical but very simple example that the addition to productive cost to cover oncost could be computed in various ways—

> Firstly, by the inclusion in estimates of 1s. per ton for works oncost and 2s. per ton for general oncost;
>
> Secondly, by adding 33⅓ per cent to productive labour to cover works oncost and 66⅔ per cent to productive labour to cover general oncost;
>
> Thirdly, by adding 33⅓ per cent to productive labour to cover works oncost and 50 per cent to *works cost* (productive labour plus works oncost) to cover general overheads;

provision for profit being made by the addition to the costed total of 25 per cent.

The respective showings would be—

	(i) £		(ii) £		(iii) £
Productive Labour	3,000		3,000		3,000
Works Oncost, 1s. per ton . .	1,000	33⅓% Productive Labour	1,000	33⅓% Productive Labour	1,000
					4,000
General Oncost, 2s. per ton . .	2,000	66⅔% Productive Labour	2,000	50% Works Cost	2,000
	6,000		6,000		6,000
Profit, 25% of Total Cost (= 20% of Selling Price) .	1,500		1,500		1,500
Selling Price .	£7,500		£7,500		£7,500

The position is more difficult where the undertaking is not confined to one class of product and where productive expenditure arises on materials in addition to labour.

Taking a further example, it is assumed that the products fall into two distinct classes, X and Y, and the total turnover for one year is £20,000.

The total figures of the year's trading are as follows—

		£
	Productive—	
	Materials	9,000
	Labour	3,500
	Works Oncost	1,200
(*a*)	General Oncost	2,300
	Total Cost	16,000
	Profit (25% on Cost to give 20% on selling price)	4,000
		£20,000

If the above figures are dissected to show the separate costing of each product, the result might be—

	X	*Y*	*Total*
Productive—	£	£	£
Materials	4,000	5,000	9,000
Labour	2,000	1,500	3,500
Works Oncost	800	400	1,200
General Oncost	1,150	1,150	2,300
Total Cost	7,950	8,050	16,000
Profit (25% on cost)	1,987	2,013	4,000
	£9,937	£10,063	£20,000
	(*b*)	(*c*)	

It being assumed that product X is exactly twice as costly to handle in the works (works oncost) as product Y, while the products are deemed to share equally in the costs of selling and general administration (general oncost).

From (*a*) above it seems that figures of oncost can be expressed as follows—

(i) Works oncost as a percentage of material cost of . . . . $\frac{12 \times 100}{90}$ or 13·33%

General oncost as . . . . $\frac{23 \times 100}{90}$ or 25·55%

(ii) Works oncost as a percentage of labour cost of . . . . $\frac{12 \times 100}{35}$ or 34·28%

General oncost as . . . . $\frac{23 \times 100}{35}$ or 65·71%

(iii) Works oncost as a percentage of material plus labour of . . $\frac{12 \times 100}{125}$ or 9·60%

General oncost as . . . . $\frac{23 \times 100}{125}$ or 18·40%

If the percentages so ascertained were to be applied to the separate material and labour costings of products X and Y, the recovery in respect of oncost would be—

		Product X £	*Product Y* £
Under (i)—			
Works Oncost	13·33% of Materials	534	666
General Oncost	25·55% of Materials	1,022	1,278
Under (ii)—			
Works Oncost	34·28% of Labour .	686	514
General Oncost	65·71% of Labour .	1,314	986
Under (iii)—			
Works Oncost	9·60% of Material and Labour	576	624
General Oncost	18·4% of Material and Labour	1,104	1,196

The application of the margin of profit to the costed figures under (i), (ii) and (iii) would then show the following—

Product X.	(i) £	(ii) £	(iii) £
Productive—Materials	4,000	4,000	4,000
Labour	2,000	2,000	2,000
Works Oncost	534	686	576
General Oncost	1,022	1,314	1,104
Total Cost	7,556	8,000	7,680
Profit, 25% on Cost	1,889	2,000	1,920
Selling Price	£9,445	£10,000	£9,600

Product Y.	(i) £	(ii) £	(iii) £
Productive—Materials	5,000	5,000	5,000
Labour	1,500	1,500	1,500
Works Oncost	666	514	624
General Oncost	1,278	986	1,196
Total Cost	8,444	8,000	8,320
Profit, 25% on Cost	2,111	2,000	2,080
Selling Price	£10,555	£10,000	£10,400

An examination of these figures provides the following points—

(1) No one of the methods (i), (ii) or (iii) has succeeded in recovering works and general oncost in their correct relative proportions applicable to products X and Y.

(2) This is due to the merging of the oncost figures into one total in arriving at the basis for percentage computation, which process makes it impossible to give effect to the extra works cost of product X as compared with Y.

(3) Under (i) both oncost recoveries and profit in the case of X are lower than the separate costs justify. A corresponding excess recovery and

excess profit would have been made on product Y—if it had been possible to realize the computed sale value of £10,555—but it is likely that an increased selling price would merely retard the sales of Y and thereby prevent full recovery of overheads.

(4) Under (ii) is the closest approximation to the actual separate costs, but it must be emphasized that this is largely accidental, as the proportion of total oncost to productive labour is approximately the same for each of the products.

If the manufacture of product X had required only £1,000 of productive labour, while Y required an expenditure of £2,500 in this direction, the figures would have shown as follows (under (ii))—

	X	Y
	£	£
Materials	4,000	5,000
Labour	1,000	2,500
Works Oncost	343	857
General Oncost	657	1,643
	6,000	10,000
Profit (25%)	1,500	2,500
Apparent Selling Price	£7,500	£12,500

(5) Under (iii)—again the special circumstances of works oncost expenditure are not taken into account, with results similar to those produced under (i).

Examples could be multiplied, but those given will serve to indicate the difficulty that arises in regard to oncost in cases where products are manufactured which are dissimilar in type, or are not subject to the same manufacturing circumstances.

If estimates are excessively loaded with oncost, the result is necessarily an excessive quoted selling price, which in a competitive market may tend to prevent sales. Conversely, an insufficient loading with oncost may produce a selling price which is too low.

Following this thought, and again using figures of material and labour cost for X and Y of—

	X	*Y*
	£	£
Material	4,000	5,000
Labour	1,000	2,500
Oncost as under (ii) would give—		
Works Oncost . .	343	857
General Oncost . .	657	1,643
	6,000	10,000
Profit (25%) . . .	1,500	2,500
	£7,500	£12,500

It will be obvious that the resultant selling price of X is lower than it should be, while that of Y is excessive.

Assuming that this fact led to a loss of all orders for Y and resulted in yearly sales of £20,000 of X, an analysis of the turnover would be—

	Product X
	£
Materials, $\frac{8}{15}$ of £20,000 . . .	10,667
Labour, $\frac{2}{15}$ of £20,000 . . .	2,666
Works Oncost (34·28% of Labour) .	914
General Oncost (65·71% of Labour) .	1,753
	16,000
Profit (25%)	4,000
Sales	£20,000

The amounts recovered in respect of oncost being—

Works Oncost . . .	£914	
General Oncost . .	£1,753	
		£2,667

whereas the actual expenditures have been—

Works Oncost . . .	£1,200	
General Oncost . .	£2,300	
		£3,500

In result, therefore, oncost has been insufficiently recovered to an amount of £833, which means in fact that instead of a costed profit of £4,000 having been realized, only £3,167 has actually resulted from the operations of the year.

There are in operation a number of methods of providing for the recovery of oncost and it is proposed to describe the more usual of these methods. It will be realized that in dealing with this question, any particular circumstances attaching to the business must be given full consideration.

The usual methods of recovering *Works Oncost* are as follows—

(*a*) By adding a percentage of the total material and labour cost—known as the prime cost basis.

(*b*) By adding a percentage of labour only —direct labour basis.

(*c*) By adding a percentage of material only —material cost basis.

(*d*) By working on a unit basis of (say) 1 ton and adding to productive cost a fixed amount per unit —unit basis.

(*e*) By arriving at a rate per hour by dividing the total of the works oncost by the number of productive hours worked and applying this to the number of hours occupied by the job—individual hour basis.

(*f*) By arriving at a similar rate for every hour worked by a machine or group of machines and applying this to the number of machine hours occupied by the job—machine hour basis.

(*g*) By dealing with works oncost separately for various departments and applying one of the methods (*a*) to (*f*).

PRIME COST BASIS

This method can be applied safely when the proportion of labour to materials in the products to be costed is generally uniform.

It will give definitely inaccurate results in other cases, e.g. where two otherwise similar productions differ only in the class and cost of material used, or where one product requires the operation of highly skilled (and therefore expensive) labour on material of small value, and the second product considerable material cost with a small labour cost.

The second of these cases may be illustrated as follows—

(Works oncost is computed at 40 per cent of prime cost.)

	Product A				*Product B*		
	£	*s.*	*d.*		*£*	*s.*	*d.*
Material . .	1	0	0		2	15	0
Labour . . .	2	0	0			5	0
Prime Cost . .	3	0	0	Prime Cost . .	3	0	0
Works Oncost (40%)	1	4	0	Works Oncost (40%)	1	4	0
Works Cost . .	£4	4	0	Works Cost . .	£4	4	0

Since product A requires the outlay of eight times the labour cost expended on product B it will be obvious that product A should also bear a greater proportion of works oncost, whereas in the example shown, an identical charge is borne by each owing to their prime costs being equal.

The percentage to be applied if this method is used is computed as follows—

The value of output which it is expected to produce during the period to be costed will have been ascertained. Experience of the production over previous periods will indicate the probable outlay in terms of productive material and productive labour.

From the accounts of previous normal periods, works expenses outlay can be ascertained. If necessary this must be revised to cover any alteration of circumstances in the current period.

The figures so arrived at may be—

Previous Period (assume a 50% increase in turnover)		*Anticipation for Current Period*	
	£		£
Material	6,000	Material	9,000
Labour	5,000	Labour	7,500
Works Oncost	1,950	Works Oncost	3,200

Prime Cost of anticipated Production	£16,500
Works Oncost estimated for current period	£3,200
Percentage of Estimated Works Oncost to Prime Cost	19·4%

This percentage will be applied, therefore, to the prime cost of every job carried through in the current period.

DIRECT LABOUR BASIS

In some instances, works oncost expenses bear a fairly constant relation to the productive labour cost involved. In such cases, works oncost may be recovered by applying the appropriate percentage to the direct labour cost of each job.

In the example given above, the percentage would be ascertained as follows—

Labour Cost (in anticipated production) . .	£7,500
Works Oncost (estimated)	£3,200
Percentage of Estimated Works Oncost to Direct Labour Cost	42·66%

This method would not give good results where widely different grades of productive labour are employed. Its application in such cases would tend to overload disproportionately the costs of those jobs which involve highly skilled and costly labour, at the expense of the jobs produced by cheap or unskilled labour.

MATERIAL COST BASIS

This method involves applying to each job cost the percentage which total estimated works expenses bear to the material cost in anticipated production—

Material Cost (in anticipated production) . .	£9,000
Works Oncost (estimated)	£3,200
Percentage of estimated Works Oncost to Material Cost	35·5%

This method can be used effectively only in cases where the labour cost is very small compared with the value of the material in the job, e.g. where the output consists solely of the machining of heavy castings or where the labour is employed on very expensive materials.

UNIT BASIS

This method can be usefully employed where there is a definite unit of production which can be used as a basis of costing. Such a unit may be either of weight (e.g. 1 ton of coal) or of quantity (e.g. 1,000 bricks). The application of works oncost in such case will be simple, as the estimated works oncost total will be divided by the number of units which it is expected to produce during the period, and the resultant rate per unit applied to each part production.

INDIVIDUAL HOUR BASIS

There are many cases in which oncost can be spread over production most equitably on a basis of time occupied on the job rather than by any other method. This applies also where the undertaking supplies "services" rather than products —a ready instance is that of a pattern making business, where the quality of material and the value of the labour (which is skilled) are subordinate to the time which the job takes to complete. Some of the trades subsidiary to the building trade, e.g. plumbing, can also be usefully dealt with by the same method.

The hourly rate is arrived at by a calculation of the *average* number of individual hours which will be occupied in completing the anticipated turnover of the period to be costed. The estimated oncost expenditure for the period will be divided by the number of hours computed as above, and the resultant rate applied to each "individual hour" occupied.

It will be obvious that definite and effective supervision and control must operate if the method just described is to operate effectively. Any laxity in this direction would result in serious overloading of estimates in respect of both labour and oncost, and loss of orders would almost certainly follow.

MACHINE HOUR RATE

In cases where individual labour has been subordinated to the expensive machine, the operating of the machine becomes a more definite factor in the allocation of oncost than any other.

The method adopted is to arrive at an hourly cost of running a machine (if all are of the same type and class) and to apply such rate to the machine time occupied by the job.

The cost of running the machine during the period to be costed is computed and divided by the anticipated number of hours during which a machine will be employed in producing the anticipated turnover.

It should be noted that the cost of running a machine should include a provision for depreciation equivalent to a writing off of its cost over its expected life.

It should also be noted that in computing the "number of employed hours" of a machine, an allowance should be made for "idle machine time" by way of a reserve for unemployed intervals due to breakdowns, overhaul, testing, etc.

In this case also, the machine operator should be well supervised in order to ensure that slackness does not prevent the effective employment of the machines. It will be prudent also to arrange for a periodical testing of the running of all machines in order to ensure that each machine is running at its correct speed.

Some organizations have installed machine clocks which are attached to the machines for recording purposes. The clock is set at the commencement of the day and operates only when the machine is working. From an examination of the clock at the end of the day, therefore, it is possible to record the time during which each machine so fitted has been running. This device forms a valuable control and can be the basis of valuable data for future costing periods.

In many cases in practice it is found that precisely similar machines will produce different quantities of output in a fixed time. Any one of various practical reasons may account for this, e.g. varying tensions of belting, but all such points should be carefully considered and adjusted if possible.

In other cases it is possible to compare the output of similar machines of different make, and to obtain valuable information from such comparison.

The "Machine Hour Rate" method is particularly valuable in certain cases where it is desirable to deal separately with particular machines or groups of machines. In such case a division of the works oncost total has to be made, giving to each machine unit which is to be separately costed, its own appropriate share of total oncost expense.

DEALING WITH WORKS ONCOST DEPARTMENTALLY

In some cases it is found possible and advisable to treat certain sections of the business separately, allocating to each such section an equitable share of the total works oncost.

Each section so treated—and the remainder of the works—will then apply one of the usual methods to recover oncost by inclusion in turnover.

Frequently a machine shop is treated as above. The work passing through the shop is often so varied and so interdepartmental as to make it almost impossible to allocate oncost directly to jobs in the usual way. In such case, therefore, any items of works oncost which relate specifically to the machine shop, and due proportions of all other such items, are gathered into a "Machine Shop Oncost" computation. The total (based on the period to be costed) will be allocated to jobs passing through the shop by the method deemed most suitable. Usually, a "Machine Shop Hourly Rate" is arrived at and applied to every job on the basis of time occupied in the shop.

The job will then be made to bear its due share of the balance of works oncost by the application as a separate item of an amount ascertained by whatever method is adopted for the purpose.

THE RECOVERY OF GENERAL ONCOST

It is usual for general oncost to be allocated to production by adding an appropriate percentage of the total *works cost* as follows—

	£
Material	5,000
Labour	3,000
Prime Cost . . .	8,000
Works Oncost—say 50% of Prime Cost	4,000
Works Cost . . .	12,000
General Oncost—40% of Works Cost	4,800
Total Cost. . . .	£16,800

the percentages obtained by comparing the estimated totals of works and general oncost with the calculated prime cost of the anticipated turnover being applied in each estimate and allocated to each cost during the period.

ASCERTAINMENT OF ONCOST TOTALS

When dealing in some detail with certain items of works and general oncost, it was pointed out on occasion that the total ascertained from the experience of the "previous period" examined would need to be revised in accordance with any anticipated variations in outlay. The amount expended by way of advertising in the last completed year was, for example, £650. If the method and extent of the advertising in the current year is expected to follow on the same lines, an amount of £650 would be included in the budgeted total of general oncost. If, however, it is intended to extend advertising plans, the anticipated cost of such proposed advertising would be included in substitution for the "experience" figure of £650.

This point is of the greatest importance and makes it necessary for the utmost care to be used in framing a budget. It follows also that if policy changes are proposed which will increase future expenditure, the possibility or improbability of recovering the increased overheads must not be ignored. If increases are decided upon, the budget must be amended forthwith to provide for them.

The following examples may serve to show more clearly how the totals of works and general oncost of the period to be costed are estimated.

Works Oncost	Cost Value of Works Output in Year to 31st Dec., 1934	Actual Outlay in Year to 31st Dec., 1934	Cost Value of Expected Works Output in Year to 31st Dec., 1935	Estimated Outlay in Year to 31st Dec., 1935
	(Material and Labour) £60,000		(Material and Labour) £77,000	
		£		£
Factory Rent and Rates		1,350		1,350 (A)
Power		3,600		4,350 (B)
Lighting		1,150		1,200 (C)
Director (part)		350		1,000 (D)
Manufacturing Sundries		380		630 (E)
Plant Maintenance		840		1,140
Wages—Foremen		1,360		1,720 (F)
Shop Labour		860		1,080
Depreciation—Plant		1,115		1,030 (G)
,, Works Buildings		600		600 (H)
		£11,605		£14,100

Remarks

(A) This item will be unaltered (as no extension of factory building is contemplated).

(B) Here an estimate has been made of the probable increase which will arise from the greater usage of the plant.

(C) A nominal increase is shown, to cover an expected slight additional cost.

(D) For 1935 it has been arranged that the whole time services of the director shall be devoted to the works.

(E) Provision is made for increased cost having regard to the greater expected output.

(F) Some addition to the costs of supervision and of general labouring will accompany the attainment of increased output.

(G) Depreciation of plant is provided for on the reducing instalment system.

(H) A yearly write-off—uniform in amount—is provided.

General Oncost	Sales—Year to 31st Dec., 1934	Actual Outlay —Year to 31st Dec., 1934	Anticipated Sales—Year to 31st Dec., 1935	Anticipated Outlay—Year to 31st Dec., 1935	
	£115,630		£147,000		
		£		£	
Staff Salaries		4,690		5,500	(A)
Directors		3,650		3,500	(B)
Rent and Rates		350		350	(C)
Insurance		168		250	(D)
Stationery		242		500	(E)
Telephone		98		120	(F)
Professional Charges		260		300	(G)
Selling Expenses—					
Travellers' Salaries		2,460		3,250	(H)
Travellers' Commissions		1,752		2,500	(I)
Bad Debts		200		200	(J)
Advertising		1,247		2,680	(K)
		£15,117		£19,150	

Remarks

(A) An increase in the cost of staff is allowed for, to deal with the anticipated increase in turnover.

(B) A redistribution of directors' activities has given an increased allocation to works expenses of £650, coupled with a slight reduction in general oncost.

(C) No change.

(D) Provides for increased cover—e.g. on additional stock carried.

(E) An increase is anticipated and provided for.

(F), (G) The estimate provides for a small increase.

(H), (I) Increases in selling costs are anticipated.

(J) It is not expected that any greater bad debt risks will accompany the anticipated increase in turnover.

(K) Advertising plans have been made on a larger scale, and the increased cost as estimated is provided.

Taking the figures shown, we arrive at the following—

	Actual. Year to 31st Dec., 1934		*Estimates. Year to 31st Dec.,* 1935	
	£		£	
Material and Labour (Prime Cost)	60,000		77,000	
Works Oncost	11,605	or 19·34% of Prime Cost	14,100	or 18·31% of Prime Cost
Works Cost	71,605		91,100	
General Oncost	15,117	or 21·11% of Works Cost	19,150	or 21·02% of Works Cost
Total Cost	86,722		110,250	
Profit, 33⅓% of Total Cost (25% on Selling Price)	28,908		36,750	
	£115,630		£147,000	

In dealing with estimates for jobs during 1935, therefore, a percentage of 18·31 will be added to prime cost to cover works oncost and a percentage of 21·02 will be added to works cost to cover general oncost.

In practice, to simplify calculation, "round figure" percentages of 19 and 21 would probably be used.

Note. In the above example, the Prime Cost basis has been adopted in dealing with works oncost. If another method is used, the appropriate percentage will be calculated in similar manner.

In some circumstances, it may be inequitable to cover the whole of works or general oncost by the general application of a single ascertained percentage on whatever basis this is calculated.

Example I. It may be that certain classes of production require little or no supervision as compared with the remainder of the output.

In such case it will be more correct to exclude the cost of supervision from the ordinary calculation of works oncost and to apply a separate "Supervision" oncost charge to each of the separate types of product.

The appropriate rate of charge will be ascertained by dissecting the total output figures to enable the separate classes to be shown separately. If the estimates given above for 1935 are so treated, the result might be—

ESTIMATED TURNOVER FOR THE YEAR ENDED 31ST DEC., 1935

	Product A		*Other Products*		*Total*
	£		£		£
Material and Labour	19,000		58,000		77,000
Works Oncost . .	3,055	(16·09%)	9,325	(16·09%)	12,380
Supervision Oncost .	120	(0·63%)	1,600	(2·71%)	1,720
Works Cost . .	£22,175		£68,925		£91,100

It will be noted that product A requires an addition to prime cost of 16·72 per cent only to cover all works charges, including supervision costs, while an addition of 18·80 per cent is necessary in the case of other products. These percentages would be applied, therefore, in appropriate cases.

Example II. Product A, as instanced in the previous example, is sold under placed contracts and no part of the advertising cost attaches to it.

To give effect to this, advertising will be excluded from the total of general oncost and a separate allocation for advertising will be made by way of charge to the "other products."

	Product A		*Other Products*		*Total*
	£		£		£
Works Cost . .	22,175		68,925		91,100
General Oncost . .	4,009	(18·08%)	12,461	(18·08%)	16,470
Advertising . .			2,680	(3·89%)	2,680
	£26,184		£84,066		£110,250

Thus percentages on works cost of 18·08 in the case of product A and of 21·97 in other cases will be applied to cover general oncost.

---

1. What is meant by "Oncost Recovery"?
2. By what methods is the recovery of Works Oncost effected? In what circumstances is each method applied?
3. If oncost is not fully recovered, what is the result?

CHAPTER IX

MAKING USE OF ONCOST RECORDS

WE have seen that the application of oncost charges with a view to the recovery of oncost expenditure during a period rests in the first place on a careful estimating of the totals of oncost to be recovered. The estimates are usually based on the experience of a suitable previous period, due regard being given where necessary to probable variations in the cost of particular items.

It must be recognized, however, that the totals of works and general oncost which result from this process are *Estimates* only. It is extremely unlikely that the actual expenditure on variable items will nearly agree with the estimates made. If the difference between actual and estimated expenditures is considerable, the result may be serious. It is vitally necessary, therefore, to provide some means of frequent comparison of estimates with actual expenditure in order that a speedy correction of any serious error may be made.

In most cases a quarterly comparison will suffice. This is effected by preparing a *Summary of Oncost* which may take the form shown on page 156.

An examination of these figures conveys in the first place an impression that the estimate of £4,787 10s. to cover general oncost for a period of three months is considerably below the actual expenditure of that period, viz. £5,834.

ONCOST SUMMARY

Item	Estimated Expenditure - Year to 31st Dec., 1935	Quarterly Proportion	Quarterly Details (actual)			
			Jan.	Feb.	Mar.	**Total**
	£	£	£	£	£	£
General Oncost —						
Staff Salaries	5,500	1,375	385	406	570	1,361
Directors' Salaries	3,500	875	292	292	292	876
Rent and Rates	350	87^{10}	29	29	29	87
Insurance	250	62^{10}	21	21	21	63
Stationery	500	125	65	73	48	186
Telephone	120	30	—	—	37	37
Professional Charges	300	75	25	25	25	75
Selling Expenses—						
Travellers—						
Salaries	3,250	812^{10}	275	300	300	875
Commissions	2,500	625	236	198	203	637
Bad Debts	200	50	17	17	17	51
Advertising	2,680	670	—	—	1,586	1,586
	£19,150	£$4,787^{10}$	£1,345	£1,361	£3,128	£5,834

Investigation of the details may show the following—

(1) *Staff Salaries.* In spite of the close comparison of actual expenditure (£1,361) with estimated expenditure (£1,375), the cost has increased until a monthly expenditure of £570 has become necessary and is expected to continue.

The cost under this head for the next three months, therefore, is expected to be 3 × £570 = £1,710.

(2) *Directors' Salaries.* ⎫ The expenditure has
(3) *Rent and Rates.* ⎬ been in accordance with
(4) *Insurance.* ⎭ estimates.

(5) *Stationery.* Although the cost in the quarter has been £186, considerably reduced expenditure is expected in the following period.

(6) *Telephone.* Expenditure has been almost in accordance with the estimates.

(7) *Professional Charges.* No actual payments have been made, the items shown being by way of monthly reserves—a yearly cost of £300 being presumed correct.

(8) *Travellers' Salaries.* The first month's expenditure was in approximate agreement with estimates. Increases in the second and third month are due to the engagement of an additional traveller at a salary of £300 per annum.

(9) *Travellers' Commissions.* Apparently in accordance with the estimate.

(10) *Bad Debts.* Here there has been a monthly provision on the basis of an estimated yearly cost of £200.

(11) *Advertising.* It is found that the expenditure of £1,586 includes a good proportion of outlay in advance, it being considered that the estimate of £2,680 will be found sufficient to cover actual expenditure for the year.

The above information will make it possible, in the first place, to examine the experience of the first quarterly period more closely, and, secondly, to re-estimate for the second period of three months.

The revised figures given on page 158 may emerge.

(A) Effect is given to the probability that the cost in the second and later periods will be reduced on account of the large outlay of the first quarter.

(B) As it is considered that the original allocation of £2,680 will suffice to cover the outlay of the year, only £670 is treated as a cost of the first

Item	Estimated Expenditure—Year to 31st Dec., 1935	Quarterly Proportion	Expenditure of Quarter ended 31st Mar., 1935	Estimated Expenditure of Quarter ending 30th June, 1935
General Oncost—	£	£	£	£
Staff Salaries	5,500	1,375	1,361	1,710
Directors' Salaries	3,500	875	876	876
Rent and Rates	350	87^{10}	87	87
Insurance	250	62^{10}	63	63
Stationery	500	125	186	100 (A)
Telephone	120	30	37	30
Professional Charges	300	75	75	75
Selling Expenses—				
Travellers—				
Salaries	3,250	812^{10}	875	900
Commissions	2,500	625	637	625
Bad Debts	200	50	51	50
Advertising	2,680	670	670	670 (B)
	£19,150	£$4,787^{10}$	£4,918	£5,186

quarter, the balance of the expenditure of that quarter being carried forward for charge in subsequent periods. A further quarterly proportion is allocated in the second quarter.

A simple Ledger Account will serve to show the effect of this treatment—

ADVERTISING ACCOUNT

1935		£	1935		£
Mch. 31.	To Expenditure	1,586	Mch. 31.	By Allocation to first quarter oncost	670
				„ Balance c/f	916
		£1,586			£1,586
1935 Apr. 1.	To Balance b/f	916	1935 June 30.	By Allocation to second quarter oncost	670
				„ Balance c/f	246
		£916			£916
1935 July 1.	To Balance b/f	£246		(being amount not yet allocated)	

The revised figures show a considered expenditure for the first quarter of £4,918 as compared with an estimate of £4,787 10s., while the expense for the second quarterly period is estimated at £5,186.

For our present purpose it is assumed that factory output plans are being adhered to and that sales expectations are being realized.

Using the figures of a previous example (page 152) we get—

	Estimates Year to 31st Dec., 1935 £	
Material and Labour (Prime Cost)	77,000	
Works Oncost	14,100	
Works Cost . . .	91,100	
General Oncost	19,150	or 21.02% of Works Cost
Total Cost . . .	110,250	
Profit—33⅓% of Total Cost (25% on Selling price) . . .	36,750	
Turnover . . .	£147,000	

Following the assumption that the works operations of the first quarter have progressed entirely according to plan, we have—

	Estimate 3 Months ended 31st Mar., 1935 £	
Works Cost $£\frac{91,100}{4}$ . . .	22,775	
General Oncost	$4,787^{10}$	or 21.02%

The application during the quarter of the percentage of 21·02 will have recovered in sales £4,787 10s. of the actual general oncost expenditure of £4,918—a shortage of £130 10s. As this amount is comparatively small, no attempt would be made in practice to deal with it. If the non-recovery had been considerable, however, it would be necessary to examine the position more closely.

There are two ways in which, according to circumstances, the matter can be treated. Firstly, the shortage can be admitted as a definite loss and so left to reduce the apparent profit. Secondly, the shortage may be carried forward and treated as an additional oncost item to be recovered in one or more future periods.

Where the trading is competitive and selling prices are more or less fixed, it is not generally possible to burden subsequent periods with more than a normal oncost loading.

Where the trading consists of specialty lines, it may be possible to make the necessary adjustments.

The illustration given serves to emphasize the need for exercising the greatest possible care when total oncost estimates are prepared, and for assuring so far as possible that all anticipated developments are taken into account when doing so.

It remains now to discuss the position which arises in regard to the estimated overheads of the quarter to 30th June, 1935. From the example taken we note that the estimate, revised in the light of experience of the quarter ended 31st March, has increased to a figure of £5,186 as compared with the original estimate of £4,787 10s.

Here, also, the course to be followed will depend on circumstances. If trade conditions allow, the increased percentage necessary (22·77 per cent as against 21·02 per cent) can be applied.

If conditions of trade, competition, etc., render this impossible, any oncost expense in excess of the original estimates will fall to be treated as a loss, to be borne out of profits.

It may be possible, however, to so adjust the circumstances that the expected oncost total will be reduced to a figure more nearly in agreement with the original estimate—e.g. the anticipated cost of staff salaries for the quarter is £1,710 as compared with an estimate of £1,375—a difference of £335. A due examination of the details may make it possible to avoid some portion of the threatened increase. Other items can be similarly considered and dealt with, if possible.

In making periodical comparisons of estimates with actual oncost expenditure, it has to be realized that payments in advance and outstanding liability items have to be taken into account. In preparing the summary of oncost, it is well to include reserves for such items, the effect being as follows—

	£
Outlay for the quarter	5,831
Add—	
Opening debit reserves . . .	135
	5,966
Less—	
Opening credit reserves . . .	420
	5,546
Add—	
Ending debit reserves (outstanding liabilities)	384
	5,930
Less—	
Ending credit reserves (payments in advance and expenditure carried forward)	1,013
	£4,917

ONCOST SUMMARY

GENERAL ONCOST—QUARTER ENDED 31ST MARCH, 1935

ITEM	Estimated Expenditure, Year to 31st Dec., 1935	Quarterly Proportion	Reserves, 1st Jan., 1935		Expenditure of Quarter			Total Expenditure	Reserves, 31st Mar., 1935		Adjusted Expenditure for the Quarter	Comparison with Estimates	
			Dr.	*Cr.*	Jan.	Feb.	Mar.		*Dr.*	*Cr.*		Excess Cost	Saving
	£	£	£	£	£	£	£	£	£	£	£	£	£
Staff Salaries . . .	5,500	1,375		28	385	406	572	1,363	26		1,361		14
Directors' Salaries . .	3.500	875			292	292	292	876			876	1	
Rent and Rates . .	350	87^{10}	25		—	—	112	112		50	87		
Insurances . . .	250	62^{10}	110							47	63		
Stationery . .	500	125			65	73	48	186			186	61	
Telephone . . .	120	30		26	26	—	—	26	37		37	7	
Professional Charges .	300	75		130	—	130	—	130	75		75		
Travellers' Salaries . .	3,250	812^{10}			275	300	300	875			875	63	
Travellers' Commissions .	2,500	625		236	236	198	243	677	196		637	12	
Bad Debts . .	200	50							50		50		
Advertising . . .	2,680	670					1,586	1,586		916	670		
	£19,150	£4,787^{10}	£135	£420	£1,279	£1,399	£3,153	£5,831	£384	£1,013	£4,917	£144	£14

The form of oncost summary shown is frequently of the utmost value as its composition calls for a detailed examination of each item of oncost before arriving at the "adjusted expenditure for the quarter."

The item of staff salaries, for example, shows a saving over the quarter of £14 as compared with the estimates for that period. Examination of the detail figures, however, presents the following facts—

(Ignoring reserves which are apparently small in amount.)

(1) Expenditure in the first month of the quarter was well below the estimated monthly cost of $\pounds\frac{1375}{3} = \pounds458$.

(2) Expenditure in the second month was still below the estimate.

(3) Expenditure in the third month of the quarter was considerably above the monthly estimate.

These facts suggest that at the commencement of the year, arrangements were in force by which the cost of staff salaries was expected to be well within anticipated expenditure. In the second and third months, however, a definite tendency to increase had brought the monthly cost to approximately £570 or £1,710 for three months, which figure would exceed the quarterly estimate by more than £300.

It would be necessary to ascertain the reasons for the increases indicated and to take steps if advisable to prevent any further expansion of the expenditure, or to reduce it immediately.

Similar consideration of the item, Travellers Salaries, indicates a definite monthly increase in the cost.

Examination of the facts reveals that an additional yearly expenditure of £300 has been undertaken by the employment of a further traveller and that in consequence a quarterly cost of £900 will be incurred as compared with an original estimate of £812 10s. 0d.

Here, no doubt, sound reasons existed for this increase in expense, and it would remain to settle the manner of its treatment as an item of oncost in future periods.

1. How would you prepare a Summary of General Oncost? What information would you extract from it?

2 What are Oncost Estimates? How are they prepared?

3. To what extent will the necessity to sell a product at a fixed price affect the question of oncost recovery?

CHAPTER X

BUDGETS AND BUDGETARY CONTROL

IN dealing with the comparison of estimated oncost with actual expenditure, it has so far been assumed that turnover expectations have been exactly realized, and that cost of production figures have been in strict accordance with the estimates made at the commencement of the costing period.

Unfortunately, in practice, this state of affairs exists very rarely and, in most cases, actual results differ considerably from the figures planned.

The frequently difficult conditions of modern trading have caused increased attention to be given to these matters and there has emerged the use of planned budgets, with continuous investigation to discover how nearly the budget plan is being realized in regard to each of the variable items which make up turnover values.

The principle which governs the use of budgets is that up-to-date knowledge (in the form of figures of cost) of what is happening over short periods gives the greatest possible opportunity for ensuring the ultimate achievement of the original plan, and makes it possible to apportion responsibility most valuably.

It will be shown later that the existence of a controlled budget also makes it possible to meet sudden changes in trading conditions in the most effective way.

The preparation of the budget is necessarily a matter for the management, who will be assisted by information and suggestions from the various executives, heads of departments and other responsible members of the organization.

POINTS OF THE BUDGET

The first point with which the budget plan must deal is the anticipated output.

This will be fixed with due regard to trade conditions generally, capacity of factory buildings and plant, working capital available, volume and type of labour obtainable and any other factors particularly applicable to the undertaking.

In addition, the size and efficiency of the selling organization must be considered, having regard to the nature and extent of competition, comparative qualities of product, selling price possibilities and other relevant points.

From the experience of previous periods, it will be possible to state with reasonable accuracy the *prime cost* constituents of the anticipated output.

The second point to be dealt with is the estimating and allocation of *factory oncost.* The records of previous experience will form a working basis by which to arrive at the probable expenditure under each head. Any planned re-arrangement of factory routine or production method, or any other modification of works policy must be taken into consideration in fixing figures of probable expense.

When the estimated total of works oncost expense is arrived at, it will be necessary to settle the means by which it shall be recovered as a constituent of sold turnover. Some alternative methods of allocating works oncost have already been discussed, and the circumstances of the business will be considered when deciding on the method which shall be employed.

Having estimated the "works cost" of the budgeted output, by adding estimated factory oncost to calculated "prime cost," the next item which calls for treatment is *general oncost.* Here, also, previous records will form a useful guide in preparing the list of estimated expenditure, full consideration being given to new or changed conditions, the existence of which may make for economy or cause increased expense.

A comparison of the total estimated general oncost with the total of works cost already ascertained, will give the percentage which can be applied to each item of production in order to recover the estimated outlay—if this method of allocation is to be adopted.

The ascertainment of the total cost consisting of the sum of prime cost, factory and general oncost will enable the details of the budget to be completed. If a due proportion of profit be added (by way of percentage addition or otherwise) the estimated selling value of the production for the period will be obtained.

The completed budget, prepared on the lines suggested, can now be subjected to detailed criticism and confirmed or modified accordingly.

It may be of use at this stage to set out a typical "budget" which, it must be remembered, can cover the whole production or a separate department of the business as may be advisable or necessary.

ELECTRICAL DEPARTMENT

BUDGET PLAN—6 MONTHS ENDING 30TH JUNE, 1935

		£	£
Details of Estimated Output (in quantity)—			
Product A	144,000		
,, B	20,000		
,, C	2,500		
,, D	15,000		
,, E	8,000		
,, F	42,000		
Estimated Prime Cost			
Material		10,750	
Labour		6,750	
			17,500
Estimated Works Oncost (16.80% of Prime Cost)			
Foremen's Salaries		865	
Shop Labour		130	
Depreciation of Plant		350	
Testing		980	
Rent and Rates of Department		220	
Power		325	
Lighting		70	
			2,940
Estimated Works Cost			20,440
Estimated General Oncost (7·29% of Works Cost)			
Proportion of Staff Salaries		400	
,, ,, Directors' Salaries		290	
,, ,, Rent and Rates (Offices and Warehouse)		45	
,, ,, Insurance		20	
,, ,, Telephone and Stationery		150	
,, ,, Professional Charges		25	
,, ,, Travellers' Salaries		270	
,, ,, ,, Commissions		185	
,, ,, Bad Debts		15	
,, ,, Advertising		90	
			1.490
Estimated Total Cost			21,930
Expected Profit (33⅓% of Total Cost)			7,310
Value of Sales required to recover full Oncost and provide stipulated margin of profit			£29,240

The budget will be compiled well before the commencement of the period to be covered by it in order that there may be sufficient time available for criticism of its detail and modification where necessary.

It is becoming the practice for departmental managers and other responsible members of the organization to assist actively in the preparation of budget details, rather than to merely submit statistics, reports or suggestions for the guidance of the management. It is felt that to adopt this course has many advantages. In the first place it enables each individual responsible member of the organization to form an idea of the business as a whole and consequently to recognize the position and relative importance of his own section or department. In the second place, the association of such individuals with the making of the budget plan has the effect of making them bear part of the responsibility for seeing that the plan is carried through and tends to prevent any one person from endangering or impeding the progress of the plan through ignorance or lack of interest in its details.

Similarly, the examination and criticism of the budget when compiled and the making of any adjustments thereon, are frequently made the subject of general conference at which all sections of the business are represented.

It has already been pointed out that the nature and extent of output to be produced will form the basis of the budget plan. It will be necessary to take into account the views of the "selling" side of the organization as to lines to be produced and the quantities of such lines to be carried as stock for sale.

Existing stocks of finished goods and components will also be investigated by means of detailed reports obtained from stores.

Where selling prices are more or less fixed, the anticipated turnover total per the budget can be compared with the result of selling the production at the fixed selling price.

In the case illustrated, it may be assumed that selling prices of Products A to F are fixed as follows—

	Estimated Output	*Turnover Value* (at fixed selling prices)
		£
Product A (£4 per gross) .	144,000	4,000
„ B (10s. each) . .	20,000	10,000
„ C (£4 10s. per 100) .	2,500	112^{10}
„ D (5s. each) . .	15,000	3,750
„ E (7s. 6d. each) .	8,000	3,000
„ F (3s. each) . .	42,000	6,300
		£27,162^{10}

If the fixed selling prices obtain, therefore, the sale of the anticipated output of the six months ended 30th June, 1935, will realize £27,162 10s. as compared with the calculated turnover of £29,240.

If the budgeted programme were to be strictly carried through, the estimated profit of £7,310 would not be obtained, the total selling price being less than that of the budget by £2,077 10s. and the realized profit being £5,232 10s. only.

When such a position arises, steps must be taken if possible to amend the budget production plans in order that anticipated profits may be in fact realized.

The following are possible alternatives—

(1) To accept the reduction in profit from an apparent 25 per cent of sales (£7,310) to a probable 17·89 per cent of sales (£5,232 10s.), revising the budget accordingly.

(2) To investigate the details of production processes in order to reduce costs of production.

(3) To investigate similarly the circumstances of oncost expenditure in the factory and by way of administration and selling costs—with a view to making reductions in either or both of works and general oncost.

(4) To investigate each of the products comprised in the anticipated output—as to cost of production and relative selling price.

It may be possible to eliminate production of a line, the selling price of which is too cut and to correspondingly increase output and sales of the more profitable of the lines. Selling possibilities would need to be carefully considered in this connexion.

(5) To eliminate the unprofitable line or lines and to take up the production of a new line bearing a larger margin of profit—production of the remaining existing lines being kept at the budgeted quantities.

The procedure to be adopted would be settled after full consideration of producing and selling possibilities, and the budget amended in accordance with the decisions made.

It will be apparent that such detailed consideration of the probabilities by the individuals responsible, will materially assist management in its effort to obtain the aimed-for result in a given period.

The production sections can be made to understand the nature and extent of the problems to be faced and can attempt to reduce costs of production, or at any rate to avoid any extension of production costs beyond the accepted limits.

The selling organization in its turn can obtain a useful fore-knowledge of the results to be attained by way of sold output, and can do all that is possible to obtain at least those results at a cost not greater than the budget estimate.

Finally, the commercial sections can see that all possible savings in expenses are achieved and that, in consequence, oncost expenditure is reduced to the lowest possible.

In this way, the general task of carrying on the business successfully is shared to some extent by the various sections of the undertaking, each of which is equipped with some knowledge of the facts and bears some portion of the responsibility.

PREPARATION OF THE BUDGET

The procedure by which the budget is prepared may be usefully summarized.

The first step is the fixing of the figure of sales to be made in the period concerned. The estimate may be made either by the management (when Sales Department will be called upon to agree or to criticize) or by Sales Department.

All relevant points will be considered—probable demand, competition as affected by quality and price, possible change in design and all other matters which may have a bearing on the sales possibilities. The figure obtained as the result of the discussions will be placed before the management for formal approval.

Following this, the suggested figure of sales will be given to the works, who will see that the output represented is within the capacity of the buildings and plant, and will prepare estimates of the appropriate production costs.

At the same time, details will be prepared of probable material requirements and by collaboration with sales, particulars of finished stock which have to be kept available to meet the probable demands of the Sales Department.

To the commercial side of the organization will fall the task of assessing the probable figures of works and general oncost which will be incurred during the period covered by the required production.

Any probable changes of circumstance will need to be taken into account and many items of works oncost will need consideration with the works, e.g. power expenditure.

The details so obtained from the sales, works and commercial sections of the organization will form the material of the complete budget which will be approved or modified by the management.

In addition to its use as a guide during a period of trading, other considerable advantages can be derived from the preparation of a budget. The placing of considered limits on administration expenses is likely to prevent the usual tendency to multiply work of a statistical kind with its attendant increases in cost.

The existence of the budget also brings into prominence the necessity for the planning of finances to cover the operations of the period. This point is of particular importance, as in many cases the financing of a business increases in difficulty as its success gives rise to expansion. In this connexion, a definite control of capital expenditure should be instituted.

While in some circumstances, the purchasing of additional or special items of plant can be the means of cheapening production costs, any such expenditure proposed should be subjected to thorough criticism in order to ensure so far as possible that the expenditure will produce the results claimed for it. If special machinery can be operated only at the cost of serious dislocation of the remaining plant, it may be that the anticipated saving will not materialize.

These are merely examples of matters which are thrown into particular relief by the operation of a budget plan.

The preparation of a budget provides a workable plan in readiness for a period of production, the details of such plan having been settled in a practical manner by consultation with those sections of the organization which are concerned.

It is important that frequent checks should be made to ensure so far as possible that budget estimates are being realized and that allocations of expenditure are being adhered to.

To effect this, details of costs and expenses are assembled and the resultant showing compared with the figures of the budget.

The preparation of these figures may take place monthly, quarterly, or at whatever interval is considered necessary and most convenient.

Following is an example of such a statement, prepared for three consecutive months—

	Yearly Estimate	Jan.	Feb.	Mar.
OUTPUT:	£	£	£	£
Product A	144,000	2,880	14,400	14,400
" B	20,000	2,000	2,000	2,000
" C	2,500	- -	1,000	—
" D	15,000	500	500	2,500
" E	8,000	—	—	1,000
" F	42,000	5,000	10,000	—

	Estimate	Cost	Cost	Cost
PRIME COST:	£	£	£	£
Material	10,750	850	1,205	886
Labour	6,750	785	568	492
	£17,500	£1,635	£1,773	£1,378
WORKS ONCOST:				
Foremen's Salaries . .	865	72	72	72
Shop Labour . . .	130	10	35	26
Depreciation of Plant .	350	29	29	29
Testing	980	115	86	78
Rent and Rates of Department	220	19	19	19
Power	325	35	30	26
Lighting	70	8	7	8
	£2,940	£288	£278	£258
GENERAL ONCOST:				
Staff Salaries . . .	400	33	33	33
Directors' Salaries . .	290	24	24	24
Rent and Rates . .	45	4	4	4
Insurances . . .	20	2	2	2
Telephone and Stationery .	150	11	15	18
Professional Charges .	25	2	2	2
Travellers' Salaries . .	270	22	22	22
" Commissions .	185	11	18	26
Bad Debts . . .	15	—	—	—
Advertising . . .	90	20	—	—
	£1,490	£129	£120	£131

(ACCOUNT CONTINUED FROM PAGE 175)

	Estimate	Cost	Cost	Cost
SUMMARY:	£	£	£	£
Prime Cost	17,500	1,635	1,773	1,378
Works Oncost	2,940	288	278	258
General Oncost	1,490	129	120	131
TOTAL COST	£21,930	£2,052	£2,171	£1,767
Profit—33⅓%	7,310	684	724	589
COMPUTED SELLING VALUE	£29,240	£2,736	£2,895	£2,356
ACTUAL SALES		£2,325	£2,875	£2,650

FINISHED STOCK:	£
1st January	280
31st March	550

WORK IN PROGRESS:	£
1st January	763
31st March	149

With these figures available, a summary of the operations of the three months period can be prepared as follows—

PRODUCTION SUMMARY

FOR THE MONTHS OF JANUARY, FEBRUARY AND MARCH, 19..

		£
Value of Work in Progress, 1st January		763
Material and Labour Costs—		
January	£1,635	
February	1,773	
March	1,378	
		4,786
		5,549
Deduct Value of Work in Progress, 31st March		149
PRIME COST		5,400
Works Oncost—		
January	£288	
February	278	
March	258	
		824
COST OF PRODUCTION		£6,224

TRADING SUMMARY

		£			£
Cost of Production .		6,224	Sales—		
Value of Finished Stock 1st January . .		280	January	£2,325	
			February	2,875	
Gross Profit c/d . .		1,896	March	2,650	
					7,850
			Value of Finished Stock 31st March . .		550
		£8,400			£8,400
General Oncost .	£129		Gross Profit b/d .		1,896
	120				
	131				
		380			
Net Profit . .		1,516			
		£1,896			£1,896

An examination of the details of the statement may produce the following—

(1) The sales have reached a sum of £7,850 during the period. If a profit of 25 per cent as per the budget had been obtained, £1,962 would have been realized—the actual profit is £1,516 only.

(2) Works oncost per the budget is estimated to amount to 16·80 per cent of prime cost. Experience of the three months' period gives a works oncost of £824 with a prime cost of £5,400—a percentage of 15·45.

(3) A similar comparison of general oncost experience gives an expenditure of 6·10 per cent of works cost, as compared with an estimated 7·29 per cent according to the budget.

(4) The cost of materials and labour (prime cost), according to the budget, required an expenditure of 59·85 per cent of the sales. The actual prime cost in the period under consideration has

absorbed 76·65 per cent of actual sales (adjusted for increase in finished stocks).

It seems, therefore, that the volume of sales has reached budget expectations, although the sales made have failed to realize the anticipated percentage of profit.

As works and general oncost expenditure have remained within the limits of the budget estimates, the reason for the reduction in profit has to be sought elsewhere.

The prime cost outlay has considerably exceeded the proportions estimated by the budget and the reduction in profit is apparently chiefly due to this.

Investigation of the facts will either confirm or modify the above deductions.

It may be that the works plan has brought into production some of the lines on which margins are cut and that succeeding periods may show an apparent benefit accordingly.

On the other hand, selling price competition may have made it impossible to realize the margins of profit set out in the budget, in which case a revision of the budget in the light of present facts will be necessary.

The example taken will suffice to show the value of frequent comparison of experience figures with budget anticipations. It will be obvious equally that sudden changes in trading conditions can also be most effectively dealt with by making quickly such revisions in the budget figures as are necessary to give effect to the changes, the revised figures being in turn subjected to criticism. Any necessary modifications of works or commercial programme can then be carried out with as little delay as possible.

1. What is the use of a Budget plan? In what ways can its existence aid management?

2. Describe the preparation of a Budget.

3. How is the financing of production assisted by a Budget plan?

CHAPTER XI

PRESENTATION OF COST RESULTS

SIMPLICITY must be the keynote of any presentation of figures or other data. This applies whatever be the purpose of displaying the figures and particularly does it apply to the presentation of figures or facts derived from the operation of a costing system.

Conversely, over-elaboration may destroy the value of any figures produced by making it impossible to extract therefrom the real facts or any valuable data.

Further, it may well be that erroneous conclusions will be drawn unless the figures prepared are submitted in their correct and most efficient form, and in result much valuable time and effort may be wasted if no worse consequence ensues. Many points of policy have to be decided on the showing of past experience or on a valuation of present tendencies, and if the basic information is itself incorrect or wrongly assembled, serious loss may result.

For the most part, indifferent presentation of cost results is due to the lack of definite decision in advance as to the specific purpose for which the information is required.

Broadly, the information available as the result of the operation of a costing system may be classified as—

(*a*) Data relating to the cost of a particular unit of production or a particular component.

(*b*) Data relating to the cost of a group of component parts forming a compound unit.

(*c*) Results of the operating of a particular job, process or contract.

(*d*) Results of the whole or any section of the activities of the undertaking over a stated period.

One of the greatest aids to the consideration of production costs is to have available a standard of measurement. This standard may be either the result of the investigations of a technical staff, or may have been deduced from past practical experience obtained in the production of similar products. Where a standard cost or a standard of measurement is in operation, the review should always refer to the standard so as to enable a complete understanding of the position under consideration. In arriving at a standard it is vitally necessary to take what may strictly be looked upon as the normal cost. It may not be sufficient to take the production of a small quantity or even of a larger quantity over a longer length of time. Everything depends upon the nature of the production and the frequency with which the given article is produced. As an example, consider a small component part made from bar steel. From the tabulated presentation of cost results given below, it will be clear that to base a standard cost or standard of measurement on the production of the month of January would be erroneous. On the other hand, it may be equally unwise to take as the standard the figure of cost which operated over the period for the month of February, whilst it may or may not be expedient to take the average cost over the two periods. The figures in themselves are misleading. It is necessary, since there is such a wide divergence of cost, to determine specifically the reasons for the great variation. In the case of the higher cost the circumstances were probably peculiar to the period and under normal conditions the costs would be less. On the other hand, there would be the necessity to ascertain whether any special or peculiar circumstances were responsible for the apparently lower cost of the production over the second period. This illustration is given to show the necessity for arriving at a grouping of results which will give a fair picture of the course of manufacture.

PRODUCTION OF PART X

Period	Quantity	No. Good	No. Scrap	Material	Labour	Oncost	Total Cost	Cost per Piece
				£ *s.* *d.*	*s.* *d.*	*s.* *d.*	£ *s.* *d.*	*s.* *d.*
Mth. Jan.	100	50	50	5 0 0	4 2	4 2	5 8 4	2 2
Mth. Feb.	100	80	20	5 0 0	6 8	6 8	5 13 4	1 5

Average, 1s. 8·46d.

It may be well to point out here that the tabulation of the results of manufacturing operations is frequently necessary as the most effective means of *fixing* the standard of production—weight, quantity, or time—for those operations in the future. The accuracy of the facts and the soundness of the form in which they are displayed are therefore of vital importance in this connexion also.

The presentation of results may take the form of a report upon a group of manufactured articles. In this case the group will comprise those parts which are components of a finished product such as, for example, an internal combustion engine or a motor-car or a piece of plant used for the purposes of production. It is interesting here to note that whilst the presentation of cost results for the completed article might be in a suitable form falling under one classification, the production details of each individual component might also be considered in a review which would fall within another classification.

The reports and figures should appear in their simplest form. Unnecessarily complicated reports and figures are no evidence of an accountant's abilities, but on the contrary emphasize a want of conception, application, and execution.

In the case of products which fall under that class of costing known as process costing, it may be desirable to present cost results based on a given agreed standard of production as well as computed over a given time period of manufacture. It will be seen, therefore, that there exists a wide choice, and consequently the greatest care should be taken before presenting results to choose the method of presentation which provides the most suitable aid to the particular manufacturing concern.

It should be emphasized that whatever method of "showing" is adopted, the result of presenting the facts relating to a particular unit or group must be the same. For example, whether the cost is stated in terms of units of production or from the angle of time occupied, the resulting costs must in each case give a basis upon which to build identical estimates or quotations.

The following represents a report upon the cost of an article which comprises several components. The chief aspect of the report is that the comparison between a standard cost and an actual cost is apparent and that the report itself links up the actual components comprised in the article with the detailed component costs which form the basis of the factory costing organization. Where desirable, such a report could give the actual Cost Account of the completed article. Indeed, where the system is sufficiently comprehensive, the cost schedules or accounts ought in themselves to provide a very effective presentation of cost results. It is not difficult to imagine such a case, as it must be remembered that costing is but the result of a process of analysis. An analysis upon lines which would make possible the compilation of running costs in a form quickly accepted as a suitable representation of cost results would provide for—

(*a*) A master cost of a product complete in its saleable form.

(*b*) A sectional cost of definite sub-units. For instance, in the case of a motor-car, the power unit could be taken as a sub-unit of the completed car.

(*c*) Individual costs of all components. In this way by the use of proper identification numbers and marks the history of a saleable article would be apparent right from the receipt of the raw material to the time when the finished article was dispatched from the works.

PRODUCT No. XXXX   COMPLETE COST   PASSED TO FINISHED STORES 28th February, 19..

Part No.	Factory Cost			Total Cost			Standard Total Cost			Losses (Compared with Standard)			Gains			Report
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	
A		5	0					5	6						6	
B		7	6					7	4			2				
C		3	6					3	3			3				
D		6	3					6	3							
E		4	3					4	2			1				
F		5	6					5	1			5				
G		2	2	1	14	2		1	9			5				
General Oncost (50% of Standard Total Cost) .					16	8		16	8							
	£1	14	2	£2	10	10	£2	10	0		1	4			6	

Apparent loss, 10d.

The figure of "factory cost" will be obtained from the individual "part costs."

The basis adopted for the addition of general oncost will have been settled as a matter of policy some time previously.

The apparent loss shown takes no cognizance of any points in connexion with the recovery or non-recovery of oncost.

It is, in fact, advisable that oncost should be the subject of entirely separate consideration, as increases or decreases in total factory cost (in the example given) can have a decisive effect on turnover budgets which in their turn directly affect the oncost recovery basis to be applied in future periods.

Apart, however, from the actual presentation of the definite costs of a particular saleable article or of any components which go to comprise that article, or of any processes which are involved in the manufacture of a given product, it may be desired to review the position of the producing unit or manufactory as a whole, and to ascertain whether it is active or sluggish in its working. The diagram which follows, though simple in character, is sufficient to display how the elements which enter into the cost of production may be brought together so as to make possible a review of factory activity in the aggregate.

The chief purpose of such a report is to enable those responsible to judge whether normal production is being maintained or how far the output of the factory has fallen below the normal standard. The question of normal production is one which must be specially considered, having regard to the circumstances of the individual case. Normal production must not be taken to mean that which should be produced under the most ideal conditions, nor, on the contrary, that which could be produced under the worst of conditions. It should be such a figure of production as is possible running under average circumstances. That is to say, basing the work upon the worker of average skill and ability, and upon the ability to purchase and stock materials at a fair average price. In regard to this matter the question of overhead charges must not be overlooked and the correct and proper proportion of normal working charges should be allowed for, in arriving at standard costs and the value of normal factory output.

It will be seen that the form of report shown on p.187 contains material sufficient to inform the management at frequent intervals as to the progress of factory working as compared with the original budget plan.

The difference between the scheduled estimates

SUMMARY OF FACTORY WORKING

FOR THE WEEK ENDED 10TH FEBRUARY, 19

	Normal Working Hours	Hours Worked	Cost	Loss	Gain
			£	£	£
Labour on Good Work	10,000	8,000	400		
Labour on Scrapped Work		1,000		50	
Material on Good Work			400		
Material Scrapped (irrecoverable)				20	
PRIME COST			800	70	
Factory Oncost (25% of Prime Cost)			200		
FACTORY COST			1,000		
General Oncost (10% of Factory Cost)			100		
FULL COST			£1,100		

SCHEDULE FOR THE WEEK	£
Labour, 10,000 hours	500
Material	500
Budgeted Prime Cost	1,000
,, Factory Oncost	250
,, Factory Cost	1,250
,, General Oncost	125
,, Full Cost	£1,375

ONCOST RECOVERY	£	£
Budgeted Recovery	375	
Recovery on Good Work	300	
Deficiency in Oncost Recovery		75
SCRAP MATERIAL AND LABOUR LOST		
Loss as above		70
Costed Loss by wastage of Labour and Materials and non-recovery of expended Oncost		£145

LABOUR REPORT: Normal, but only 9,000 hours worked owing to breakdown.

MATERIAL REPORT: Normal—Supplies available.

SPECIAL ITEMS: Breakdown on 6th February in Bay C (as reported in detail on that day) caused loss of 1,000 working hours.

for labour and materials and the actual expenditures thereon, viz.—

	Labour		Materials	
	£		£	
Schedule . .	500		500	
Expenditure .	450		420	
	50	+	80	= £130

added to the costed loss of £145, accounts for the difference between Scheduled Full Cost (£1,375) and actual Full Cost (£1,100).

The position as summarized could, of course, be displayed by presenting for review the job or production accounts, but it will be obvious that a summary presenting the position as a whole is far more effective from a managerial point of view. The report should, however, be completed by a statement of definite and considered reasons as to why the works has failed to realize a standard production at standard or normal costs.

Reverting to the presentation of details there are several classes of experience which lend themselves to special presentation and which, when suitably presented, are invaluable in aiding good works management. Amongst such items are power costs, running costs of plant, heating and lighting costs, transport, repairs and renewals of plant, tools, patterns and buildings, stores, administration and cost of supervision. The presentation of figures as individual reports on such items of expenditure should be made having regard to the class of product, process or article manufactured. It is not sufficient merely to make comparisons of figures appertaining to a period corresponding to the one under review unless also some standard of measurement is included in the report, as the corresponding figures of expense may not be actually comparable. As to what unit should be taken depends entirely upon the class of trade and industry. It may be decided that normal and actual working hours should form a basis of measurement. On the other hand, it may be wise to take a standard such as quantity, for example, tons or yards produced, or the recognized standard of measurement adopted and well understood in a particular trade, which might be represented in turnover measured by barrels carrying a definite quantity.

It will be seen that, whilst it is essential to have at command accuracy in figures, it is just as essential that those figures are put together in a form from which a correct viewpoint may be taken. It is possibly true to say that while there frequently exists sufficient ability to make correct mathematical calculations, there is not also the ability to produce in its simplest and most useful form a report required for the consideration of the management.

The work involved in calculating and compiling can only be worth its full value if the collation of the details is carried out effectively and with intelligence.

---

1. In what form would you display a "Component" cost?
2. What is a "Standard of Production" ?
3. What information can be usefully made the subject of special reports by the Cost Office to the Management.

CHAPTER XII

THE COST OFFICE

IT is always desirable to have well in mind the purpose for which any section of a business has been organized and is permitted to function. Unless there are good reasons for the continued existence of a department it should certainly not be carried on, as if so it is adding unnecessary expense to the business. This, by the way, is true also in regard to appliances. Often appliances are acquired before it is definitely ascertained what advantages will be forthcoming from their use. This indiscriminate desire to procure the latest type of appliance arose during the Great War and grew rapidly during the early post-war years. Much of this special equipment then purchased did not fulfil to an even normal extent the purpose for which it was designed. The reasons varied: in some cases, the equipment was not properly applied to its work and in others the volume of work for the equipment was not sufficient to justify its being used at all.

The position with regard to Cost Offices was similar. During the Great War and the early post-war years it became usual for a producing unit to have as part of its organization a Cost Office or Cost Department. To some extent such Cost Departments served some useful purpose, but it would not be correct to assume that the majority nearly fulfilled the purpose for which they were instituted. Moreover, expense was little considered and extravagance in working resulted frequently in the closing of the Cost Office when the abnormal periods were ended.

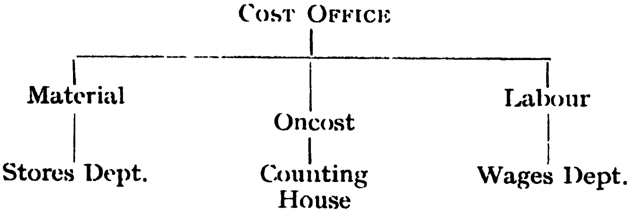
Those who believed in simple and direct methods of recording facts were left to rebuild the practice of costing and to supply the needs of industry in this connexion.

It matters little whether a business is of small or of large dimensions for the principles to be applied are essentially the same. Of most importance is the manner in which those principles are applied and the efficient development of the organization necessary.

Often the Cost Office is looked upon by manual employees and supervisors as an inquisition and little goodwill is extended towards those engaged in that part of the work which necessitates personal investigation into matters affecting the workers and works routine. It is, moreover, a department which too often has been considered by the Commercial and Financial Departments of a business as being entirely isolated and of little purpose save to the Works Manager himself. These ideas also were a survival of the War period when costing was looked upon merely as the collecting of production data not based upon any principles of accountancy.

The position in this respect gradually but surely altered. Many so-called costing systems which were instituted prior to the slump years which followed the early post-war boom have disappeared mainly as previously stated because it was felt that here was an expense which could well be cut out. In many cases this may have been true, due to the fact that the Cost Department was not functioning correctly. In cases where during that period it was serving its true purpose, the function of cost accounting has been retained, and owing to a more intelligent interest being taken in the subject by accountants generally, a marked improvement has been made in the direction of costing upon the principles so well known and understood in financial accounting.

To obtain satisfactory results the Cost Office must have access to all records appertaining to the expense of production, and this being so may be looked upon as the clearing house for all such activity, whether that activity represents the progress of material, labour or administration. It will be seen from the following that the Cost Office can obtain the information required for its purpose by a very simple plan of working.



It has already been stated that the elements of cost are material, labour and oncost, and from the diagram it is seen that these elements can be easily collated by using three distinct departments as channels or connecting links, namely, Stores Department, Counting House and Wages Department. The above simple diagram is sufficient to show the principles involved. It could, of course, be extended to take in the numerous sub-departments in the works, and also include the various commercial departments which exist on the financial side of the business.

As has been suggested, the Cost Office should have access to all works departments. This should be a direct access so as to permit of direct personal inquiry on all matters affecting the movement and progress of both material and labour. It would be quite good, therefore, for the Cost Office to have direct access to the Drawing Office, Planning Department, Progress Department, Experimental Department, Buying Department and any other production department without let or hindrance.

The duties of the Cost Office staff are important, inasmuch as accuracy is the first essential. Analysis, which is a fundamental principle of costing, demands accuracy in its fullest sense, and it is not difficult to see that without this quality of exactitude, the purpose of costing could fail entirely. The primary duty, therefore, is to determine and accurately record the cost of production. In the preceding chapters, various methods of arriving accurately at the cost of production have been discussed. The Cost Office staff is responsible for compiling the cost of production in strict accordance with the methods chosen.

It is desirable that members of the Cost Office staff should make themselves acquainted with the production organization so that a more intelligent interest can be taken in the exercise of their own individual tasks.

As was stated in the chapter which dealt with the presentation of Cost Results, it is the duty of the Cost Office staff to portray results in a manner which will lead to right conclusions. Sufficient has already been said upon this particular aspect of the Cost Office work. It may also be stated definitely that a duty of the Cost Office is to aid the management in the elimination of waste.

From the information which finds its way to the Cost Office automatically, it should be possible to locate the avenues where waste is likely to thrive before the position is so bad that drastic steps have become necessary to avoid future losses. This duty will entail constant watchfulness and will naturally give rise to a further responsibility for locating the causes from which losses arise.

There need be nothing dramatic in the exercise of the duties of the Cost Office. All investigation and report should be of a continuous nature performed as a simple routine in the conduct of business affairs.

The Accountant in charge of the Cost Office should not be looked upon as an inquisitor. He should be considered the friend of those with whom he comes in contact in the course of his daily work. To exercise his powers efficiently he must set himself out to be tactful and courteous in his manner. There is nothing lost by courtesy and much can be gained by tact. The Accountant should be able on his own responsibility to make investigations in any department, whether it be a Works or Commercial Department. This power to investigate should be considered a right and the Accountant should exercise this right as and when occasion demands. It will, of course, be clearly realized that this power or right places upon him a grave responsibility. The staff under his control and supervision should have the same free access, provided the authority to investigate has been directly delegated by the Chief Accountant. It is quite obvious that the right to enforce the production of evidence where necessary in all matters under review and to make recommendations on the result of any investigation must necessarily follow.

In Chapter X consideration was given to budget forecasting. Therein it was pointed out that accurate and reliable information submitted by the Cost Office is invaluable in the building up of budgets. The recorded experience of previous working must give a basis of probable expenditure both in the aggregate and also in the various classes or departments into which the expenses are divided. Particularly is this so when dealing with the items which fall under the headings of factory and general oncost. An equally important duty is to provide such information as will ensure the fulfilment of the budget. In other words as important as the right creation of a budget is to see that effect is given to the budget which has been adopted. This can only be done by constantly watching the progress of the business, and the department which before any other should be able to supply the information necessary for this is indisputably the Cost Office.

---

1. How does the Cost Office obtain necessary detailed information?

2. Does the scope of the Cost Office extend beyond the recording of material and labour "movement"?

3. What other sections of the organization should be most closely allied to the Cost Office?

CHAPTER XIII

COSTING AS PART OF THE DOUBLE ENTRY

At this stage, the preparation and presentation of cost results have been dealt with, as well as the accumulation of the material necessary for these purposes.

From time to time certain comparisons have been made of costed figures with those existing in the financial books, but no attempt has yet been made to bring the two sets of figures together automatically. In other words, the costing figures, however complete and however accurately prepared, have remained outside the general system of book-keeping in the form of valuable but entirely separate memoranda.

The value of accurate costing figures and the information obtainable therefrom cannot be disputed, whatever the method of their preparation or the form of their presentation. It is submitted, however, that where a comprehensive costing system does exist, considerable advantage will be gained if the two sets of figures can be more definitely related.

As will be seen, the process of including the Cost Accounts in the double-entry system is by no means difficult.

The following assumed figures will be used to illustrate simply the method adopted to incorporate the Cost Ledger accounts in the general book-keeping system.

Extract from Financial Books at 31st March, 1935

	£	£
Wages Account—		
Debits from Wages Summary		
31st January, 1935	4,130	
28th February, 1935	2,876	
31st March, 1935	3,124	
		10,130
Purchases Account—		
Debits from Purchases Summary		
31st January, 1935	3,650	
28th February, 1935	2,139	
31st March, 1935	2,879	
		8,668
Sales Account—		
Credits from Sales Summary		
31st January, 1935	10,250	
28th February, 1935	6,072	
31st March, 1935	6,524	
		22,846
Stock and Work in Progress—		
1st January, 1935		4,791
While the value of Stock and Work in Progress at 31st March, 1935 is		5,621

In the ordinary course, the above figures would give rise to a Trading Account in the following form—

TRADING ACCOUNT

Dr. For the 3 Months ended 31st March, 1935 *Cr.*

	£	£		£
To Purchases	8,668		By Sales	22,846
Add Stock 1st Jan.	4,791			
	13,459			
Less Stock 31st Mch.	5,621			
		7,838		
,, Wages		10,130		
,, Balance, being Gross Profit		4,878		
		£22,846		£22,846
				£
			By Balance, being Gross Profit	4,878

The costing records for the same period may contain the following—

WAGES ABSTRACT

Date	Total	Direct on Jobs	P.O. 1	P.O. 2	P.O. 3	P.O. 4	P.O. 5	P.O. 6	P.O. 7	P.O. 8
1935 W/E Jan.										
Mch. 30										
	10,130	9,825	110	—	46	12	3	21	18	95

P.O. 1. Indirect (General) Labour on Productive Jobs.
2. Plant Additions.
3. Plant Maintenance.
4. Patterns Maintenance.
5. Repairs Buildings.
6. Advertising and Canvassing.
7. General Odd Labour.
8. Stores and Warehouse.

COST LEDGER

Dr. DIRECT LABOUR SUMMARY ACCOUNT *Cr.*

Dr.	*Cr.*
1935 Mch. 31. To Expenditure per Wages Abstract . . £9,825	

Dr. P.O.1 (INDIRECT LABOUR ON PRODUCTION) *Cr.*

Dr.	*Cr.*
1935 Mch. 31. To Expenditure per Wages Abstract . . £110	

Dr. P.O.3 (Plant Maintenance) *Cr.*

1935 Mch. 31.	To Expenditure per Wages Abstract . .	£46	

Dr. P.O.4 (Patterns Maintenance) *Cr.*

1935 Mch. 31.	To Expenditure per Wages Abstract . .	£12	

Dr. P.O.5 (Repairs to Buildings) *Cr.*

1935 Mch. 31.	To Expenditure per Wages Abstract . . .	£3	

Dr. P.O.6 (Advertising and Canvassing) *Cr.*

1935 Mch. 31	To Expenditure per Wages Abstract .	£21	
	,, Sundry Materials per Requisition . .	8	

Dr. P.O.7 (General Odd Labour) *Cr.*

1935 Mch. 31.	To Expenditure per Wages Abstract . .	£18	

Dr. P.O.8 (Stores and Warehouse) *Cr.*

1935 Mch. 31.	To Expenditure per Wages Abstract . .	£95	

Dr. Direct Materials Summary Account *Cr.*

1935 Mch. 31.	To Materials per Requisitions . . .	£7,782	

Keeping well in mind that the entries in the Cost Ledger are at present only of a memorandum nature, the following Journal entries may be made—

	Dr. £	Cr. £
Direct Labour Summary Account (Cost Ledger) . . . . . . *Dr.*	9,825	
Indirect Labour on Production (P.O. 1) *Dr.*	110	
Plant Maintenance . . (P.O. 3) *Dr.*	46	
Pattern Maintenance . (P.O. 4) *Dr.*	12	
Repairs to Buildings . (P.O. 5) *Dr.*	3	
Advertising and Canvassing (P.O. 6) *Dr.*	21	
General Odd Labour . (P.O. 7) *Dr.*	18	
Stores and Warehouse . (P.O. 8) *Dr.*	95	
To Wages Account (Nominal Ledger) .		10,130
Direct Materials Summary Account (Cost Ledger) . . . . . . *Dr.*	7,782	
Advertising and Canvassing (P.O. 6) *Dr.*	8	
To Materials Consumed Account (Nominal Ledger)		7,790
Materials Consumed Account . . *Dr.*	13,459	
To Purchases		8,668
To Stock in Trade (1/1/35) . . .		4,791
Stock in Trade (31/3/35) . . . *Dr.*	5,621	
To Materials Consumed . . .		5,621

These entries have been made with the object of establishing the Cost Ledger details as part of the double-entry. That they have done so may be seen from an examination of the following accounts, in which effect has been given to the above Journal entries—

FINANCIAL BOOKS

Dr. WAGES ACCOUNT *Cr.*

1935		£	1935		£
Mch. 31.	To Wages Summary .	10,130	Mch. 31.	By Direct Labour Summary Account .	9,825
				„ Indirect Labour on Production .	110
				„ Plant Maintenance .	46
				„ Pattern Maintenance .	12
				„ Repairs to Buildings .	3
				„ Advertising and Canvassing . . .	21
				„ General Odd Labour .	18
				„ Stores and Warehouse	95
		£10.130			£10,130

PURCHASES ACCOUNT

Dr.			*Cr.*		
1935		£	1935		£
Mch. 31.	To Sundries per Purchase Summary . .	8,668	Mch. 31.	By Transfer—Materials Consumed Account.	8,668

STOCK AND WORK IN PROGRESS

Dr.			*Cr.*		
1935		£	1935		£
Jan. 1.	To Value at this date .	4,791	Mch. 31	By Materials Consumed Account . .	4,791
Mch. 31.	„ Materials Consumed Account . .	£5,621			

MATERIALS CONSUMED ACCOUNT

Dr.			*Cr.*		
1935		£	1935		£
Mch. 31.	To Transfer—Purchases .	8,668	Mch. 31.	By Transfer—Stock in Trade . . .	5,621
	„ Transfer—Stock in Trade, 1/1/35 .	4,791		„ Direct Materials Summary Account .	7,782
				„ Advertising and Canvassing (P.O. 1) .	8
				„ Balance c/d . .	48
		£13,459			£13,459
	To Balance b/d . .	£48			

A list of balances extracted at this stage would give—

		Dr.	*Cr.*
		£	£
Direct Labour Summary Account . .		9,825	
Indirect Labour on Production	(P.O. 1)	110	
Plant Maintenance . .	(P.O. 3)	46	
Patterns Maintenance . .	(P.O. 4)	12	
Repairs to Buildings . .	(P.O. 5)	3	
Advertising and Canvassing .	(P.O. 6)	29	
General Odd Labour . .	(P.O. 7)	18	
Stores and Warehouse . .	(P.O. 8)	95	
Direct Materials Summary Account. .		7,782	
Stock and Work in Progress . . .		5,621	
Materials Consumed		48	
		£23,589	

The corresponding balances of the accounts in the financial books before incorporating the cost figures were—

	Dr.	Cr.
	£	
Wages	10,130	
Purchases	8,668	
Stock and Work in Progress, 1/1/35	4,791	
	£23,589	

The Trading Account can now be prepared by making the usual transfers from the open accounts—with the following result—

TRADING ACCOUNT

Dr. FOR THE 3 MONTHS ENDED 31ST MARCH, 1935 *Cr.*

		£		£
To Costed Materials Consumed		7,782	By Sales for the period	22,846
,, Direct Labour Cost		9,825		
Prime Cost		17,607		
,, *Works Expenses—*	£			
Indirect Labour on Production	110			
Plant Maintenance	46			
Patterns Maintenance	12			
Stores and Warehouse	95			
		263		
Works Cost		17,870		
,, Gross Profit c/d		4,976		
		£22,846		£22,846
		£		£
To Repairs to Buildings		3	By Gross Profit b/d	4,976
,, General Odd Labour (not allocated to Production)		18		
,, Advertising and Canvassing		29		
,, Materials Consumed, not accounted for		48		

The above account shows a gross profit of £4,976, while items charged against it amount to £98, the balance of £4,878 being equivalent to that shown by the Trading Account originally prepared from the financial accounts (page 197).

It may now be observed that the procedure outlined above has had the following results—

(1) The Cost Ledger Accounts have been made to form part of the double-entry.

(2) The Trading Account produced in result is of necessity more accurate in its showing than that prepared from the figures alone of the financial books.

The difference between the two sets of Trading Account figures is due to the fact that the incorporation of costing figures in the double-entry plan has brought about an automatic ejectment from production costs of those items which are in fact of the nature of general overhead or lost expenditure and should be treated as such.

Repairs to buildings, unallocated labour (idle time would fall into a similar category), labour and material spent on advertising and canvassing, and the cost of materials which have been wasted or which for any reason have not been charged to production, are correctly excluded from the Trading Account, which should contain only those items of expenditure which are recharged to customers by way of direct cost.

Even more of importance is the fact that these items are themselves thrown out for definite criticism, e.g. material consumed not accounted for and general odd labour not allocated to production.

The cost of these and other similar items is made available for examination by whatever standards may be applicable, e.g. percentage of productive wages, percentage of material value productively absorbed, or other suitable adopted basis.

For the sake of clearness, the transfers from the various accounts are journalized as follows—

	Dr. £	*Cr.* £
Trading Account . . . . . *Dr.*	17,607	
To Direct Material Summary Account .		7,782
,, Direct Labour Summary Account .		9,825
Trading Account . . . . . *Dr.*	263	
To Indirect Labour on Production .		110
,, Plant Maintenance		46
,, Patterns Maintenance . . .		12
,, Stores and Warehouse . . .		95
Profit and Loss Account . . . . *Dr.*	98	
To Repairs to Buildings . . .		3
,, General Odd Labour . . .		18
,, Advertising and Canvassing . .		29
,, Direct Materials Summary Account. (for Materials not accounted for)		48

But it will be noted that the various credit postings detailed above have not been made in the relative accounts exemplified.

For the purpose of our further consideration, the Trading and Profit and Loss Account detailed in Chapter I may again be used.

TRADING AND PROFIT AND LOSS ACCOUNT

Dr. FOR THE YEAR ENDED 30TH JUNE, 1935 *Cr.*

	£		£
To Stock of Materials in hand (1/7/34) . .	4,659	By Sales *less* Returns .	33,860
,, Purchases . . .	14,272	,, Stock of Materials and Work in Progress, (30/6/35) . .	5,913
,, Wages—Productive .	12,244		
,, Gross Profit c/d .	8,598		
	£39,773		£39,773

(ACCOUNT CONTINUED FROM PAGE 204)

Dr.	£	*Cr.*	£
To Wages—Unproductive	1,861	By Gross Profit b/d	8,598
,, Salaries	1,120		
,, Rent, Rates and Insurance	721		
,, Lighting and Heating	189		
,, Repairs to Plant	220		
,, Motor Expenses	698		
,, Travelling Expenses	1,247		
,, Printing, Stationery and Advertising	962		
,, Discounts Allowed	235		
,, Bank Charges	32		
,, Plant Depreciation	106		
	7,391		
,, Balance, being Net Profit	1,207		
	£8,598		£8,598

The appropriate accounts in the Nominal or Private Ledger may appear as follows (before making the transfers to the final accounts as above)—

Dr. STOCK IN TRADE (MATERIALS ONLY) *Cr.*

		£		£
1934 July 1.	To Value at this date	4,659		

Dr. PURCHASES *Cr.*

		£			£
1935 June 30.	To Sundries per Purchase Summary	14,093	1934 July 1.	By Reserves b/d	296
	,, Reserves c/d	475			
		14,568			296
	(Balance £14,272)				
			1935 July 1.	By Reserves b/d	£475

WAGES (PRODUCTIVE)

Dr.					Cr.
1935		£	1934		£
June 30.	To Sundries per Wages Summary	12 385	July 1.	By Reserve for Wages accrued	126
	„ Reserve for Wages c/d	159	1935 June 30.	„ Transfer—Plant Repairs	174
		12,544			300
	(Balance £12,244)				
			1935 July 1.	By Reserve for Wages accrued b/d	£159

SALES

Dr.					Cr.
1935		£	1935		£
June 30.	To Sundries per Sales Summary	709	June 30.	By Sundries per Sales Summary	34,569
				(Balance £33,860)	

WAGES (UNPRODUCTIVE)

Dr.					Cr.
1935		£			£
June 30.	To Sundries per Wages Summary	1,861			

SALARIES

Dr.					Cr.
1935		£			£
June 30.	To Sundries	1,120			

RENT, RATES, AND INSURANCE

Dr.					Cr.
1934		£	1935		£
July 1.	To Reserve b/d—Rates paid in advance	31	June 30.	By Reserve c/d—Rates paid in advance	48
1935 June 30.	„ Rents per Summary	360			
	„ Rates per Summary	139			
	„ Insurances	199			
	„ Reserve for Rent Outstanding	40			
		769			
	(Balance £721)				
1925 July 1.	To Reserve b/d—Rates in advance	£48	1935 July 1.	By Reserve b/d—Rent outstanding	£40

Dr. LIGHTING AND HEATING *Cr.*

		£			£
1935 June 30.	To Expenditure per Purchase Summary	172	1934 July 1.	By Reserve b/d	27
	„ Reserve c/d	44			
		216			
	Balance £189)				
			1935 July 1.	By Reserve b/d	£44

Dr. REPAIRS TO PLANT *Cr.*

		£			£
1935 June 30.	To Materials	46			
	„ Transfer—Wages	174			
	(Balance £220)				

Dr. MOTOR EXPENSES *Cr.*

		£			£
1935 June 30.	To Petrol and Oil	386	1935 June 30.	By Stock of Petrol and Oil c/d	26
	„ Licences and Tax	78			
	„ Repairs	260			
		724			
	(Balance £698)				
1935 July 1.	To Stock of Petrol and Oil b/d	£26			

Dr. TRAVELLING EXPENSES *Cr.*

		£			£
1935 June 30.	To Sundries	1,247			

Dr. PRINTING, STATIONERY AND ADVERTISING *Cr.*

		£			£
1934 July 1.	To Stock of Stationery b/d	116	1935 June 30.	By Advertising Expenditure c/f	160
1935 June 30.	„ Sundries per Cash and Purchases Summary	1,141		„ Stock of Stationery c/d	135
		1,257			295
	(Balance £962)				
1935 July 1.	To Stock of Stationery b/d	£ 135			
	„ Advertising Expenditure b/f	160			

DISCOUNTS ALLOWED

Dr.					*Cr.*
1935		£			£
June 30.	To Sundries per Cash Summary . .	235			

BANK CHARGES

Dr.					*Cr.*
1934		£		.	£
Dec. 31.	To Charges	15			
1935					
June 30.	„ „	17			
	(Balance £32)				

PLANT DEPRECIATION

Dr.					*Cr.*
1935		£			£
June 30.	To Depreciation at 5% per annum on £2,120 .	106			

The cost records may contain the following—

STORES SUMMARY

Dr.						*Cr.*
1934			£	1935		£
July 1.	To Materials in Stock .		4,659	June 30.	By Direct Materials Summary (Requisitions passed) . . .	13,041
1935					„ Plant Maintenance (P.O. 3). . .	46
June 30.	„ Goods received into Store, viz.—				„ Motor Expenses, Petrol and Oil (P.O. 9) .	360
	Production Materal	£14,272				
	Petrol and Oil	386				
	Materials for Plant Repairs	46				
			14,704			
			£19,363			

Note. For convenience the Stock value at 31st July, 1934 is regarded as wholly composed of materials. The Stock value at 30th June, 1935, is assumed to comprise—

Materials . .	£4,913
Wages Expended	1,000
	£5,913

Dr. DIRECT MATERIAL SUMMARY *Cr.*

1935		£			£
June 30.	To Materials used in Production per Requisitions (Transfer from Stores Summary) .	13,941			

Dr. PLANT MAINTENANCE (P.O. 3) *Cr.*

1935		£	1935		£
June 30.	To Materials used per Requisitions . .	46	June 30.	By Transfer Works Oncost Summary .	220
	„ Labour expended .	174			

Dr. MOTOR EXPENSES (P.O. 9) *Cr.*

1935		£	1935		£
June 30.	To Petrol and Oil used .	360	June 30.	By Transfer General Oncost Summary .	360

Dr. WAGES SUMMARY *Cr.*

1935			£	1935		£
June 30.	To Wages paid—			June 30.	By Direct Labour Summary . . .	11,554
	Productive Analysis	£12,385			„ P.O. 3 Plant Maintenance . .	174
	Unproductive Analysis	1,861	14,246		„ Indirect Labour Summary . . .	1,428

Dr. DIRECT LABOUR SUMMARY *Cr.*

1935		£			£
June 30.	To Productive Labour (accumulation of details) charged as Direct Costs . .	11,554			

Dr. INDIRECT LABOUR SUMMARY *Cr.*

1935		£	1935		£
June 30.	To Unproductive Labour (accumulation of details) charged to P.O. numbers for Supervision, General Works Odd Labour, Stores and Warehouse and other items of labour cost classed as unproductive . .	1,428	June 30.	By Transfer Works Oncost Summary .	1,428

Dr. WORKS ONCOST SUMMARY *Cr.*

1935		£			
June 30.	To Transfer Indirect Labour . . .	1,428			
	„ Plant Depreciation .	106			
	„ Repairs to Plant transferred . . .	220			

Dr. GENERAL ONCOST SUMMARY *Cr.*

1935			£	
June 30.	To Salaries . .	£1,120		
	„ Travelling Exps.	1,247		
	„ Printing, Stat'ry & Advertising	962		
	Disc'ts Allowed	235		
	„ Bank Charges .	32		
			3,596	
	„ Transfer Motor Expenses . . .		360	
	„ Rent, Rates and Insurance . . .		721	
	„ Lighting and Heating.		189	
	„ Motor Expenses (other than materials) .		338	

Journal entries to establish memorandum Cost Accounts as part of the double-entry system (instead of the normal period-end entries in the financial books)—

			£	£
Stores Summary Account	(Cost Ledger)	*Dr.*	4,659	
Stock . . .	(Nominal Ledger)	*Cr.*		4,659
Stores Summary Account .	(C.L.)	*Dr.*	14,272	
Purchases	(N.L.)	*Cr.*		14,272
Stores Summary Account .	(C.L.)	*Dr.*	386	
Motor Expenses . . .	(N.L.)	*Cr.*		386
Stores Summary Account .	(C.L.)	*Dr.*	46	
Repairs to Plant . . .	(N.L.)	*Cr.*		46
Wages Summary . . .	(C.L.)	*Dr.*	12,385	
Wages Productive . .	(N.L.)	*Cr.*		12,385
Wages Summary . . .	(C.L.)	*Dr.*	1,861	
Wages Unproductive . .	(N.L.)	*Cr.*		1,861
General Oncost Summary .	(C.L.)	*Dr.*	1,120	
Salaries	(N.L.)	*Cr.*		1,120
General Oncost Summary .	(C.L.)	*Dr.*	721	
Rents, Rates and Insurances .	(N.L.)	*Cr.*		721
General Oncost Summary .	(C.L.)	*Dr.*	189	
Lighting and Heating . .	(N.L.)	*Cr.*		189
General Oncost Summary .	(C.L.)	*Dr.*	338	
Motor Expenses (other than Materials)	(N.L.)	*Cr*		338

			£	£
General Oncost Summary	(C.L.)	*Dr.*	1,247	
Travelling Expenses	(N.L.)	*Cr.*		1,247
General Oncost Summary	(C.L.)	*Dr.*	962	
Printing, Stationery and Advertising	(N.L.)	*Cr.*		962
General Oncost Summary	(C.L.)	*Dr.*	235	
Discounts	(N.L.)	*Cr.*		235
General Oncost Summary	(C.L.)	*Dr.*	32	
Bank Charges	(N.L.)	*Cr.*		32
Works Oncost Summary	(C.L.)	*Dr.*	106	
Depreciation.	(N.L.)	*Cr.*		106
(Depreciation of Plant.)				
Wages Productive	(N.L.)	*Dr.*	126	
Wages Summary	(C.L.)	*Cr.*		126
(To adjust for wages paid in current year on previous year's production.)				
Wages Summary	(C.L.)	*Dr.*	159	
Productive Wages	(N.L.)	*Cr.*		159
(For Wages accrued but not paid at 30th June, 1935.)				
Motor Expenses	(N.L.)	*Dr.*	26	
Stores Summary Account	(C.L.)	*Cr.*		26
(Adjustment re Stock of Petrol.)				

(Many of the above postings in the Cost Ledger will not need to be actually made as most of the items are already entered in the Cost Ledger Accounts which, however, until this stage have been memoranda only.)

The completion of the postings and the closing of the amalgamated Nominal and Cost Ledgers to the Trading and Profit and Loss Accounts, will have the following results—

NOMINAL LEDGER

Dr. STOCK *Cr.*

		£			£
1934 July 1.	To Value at this date .	4,659	1935 June 30.	By Stores Summary .	4,659

Dr. PURCHASES *Cr.*

		£			£
1935 June 30.	To Sundries per Purchase Summary . .	14,093	1934 July 1.	By Reserve b/d . .	296
	„ Reserves c/d . .	475	1935 June 30.	„ Stores Summary .	14,272
		£14,568			£14,568
			1935 July 1.	By Reserve b/d . .	£475

Dr. WAGES (PRODUCTIVE) *Cr.*

		£			£
1935 June 30.	To Sundries per Wages Summary . .	12,385	1934 July 1.	By Reserves b/d . .	126
	„ Reserve for Wages Accrued c/d . .	159	1935 June 30.	„ Transfer - Plant Repairs . .	174
	„ Wages Summary .	126		„ Wages Summary .	12,385
	„ Plant Repairs . .	174		„ „ „ .	159
		£12,844			£12,844
			1935 July 1.	By Reserve b/d . .	£159

Dr. SALES *Cr.*

		£			£
1935 June 30.	To Returns per Summary	709	1935 June 30.	By Sundries per Sales Summary . .	34,569
	„ Trading Account .	33,860			
		£34,569			£34,569

Dr. WAGES (UNPRODUCTIVE) *Cr.*

		£			£
1935 June 30.	To Sundries per Wages Summary . .	1,861	1935 June 30.	By Wages Summary .	1,861
		£1,861			£1,861

Dr. SALARIES *Cr.*

		£			£
1935 June 30.	To Cash—Sundries . .	1,120	1935 June 30.	By General Oncost Summary . . .	1,120
		£1,120			£1,120

Rent, Rates and Insurance

Dr.					*Cr.*
1934		£	1935		£
July 1.	To Reserve b/d—Rates paid in advance .	31	June 30.	By Reserve c/d—Rates paid in advance .	48
1935 June 30.	„ Rents per Summary .	360		„ General Oncost Summary . . .	721
	„ Rates per Summary .	139			
	„ Insurances . .	199			
	„ Reserve for Rent accrued c/d . .	40			
		£769			£769
1935 July 1.	To Reserve b/d—Rates paid in advance	£48	1935 July 1.	By Reserve b/d—Rent .	£40

Lighting and Heating

Dr.					*Cr.*
1935		£	1934		£
June 30.	To Expenditure per Purchase Summary .	172	July 1.	By Reserve b/d . .	27
	„ Reserve c/d . .	44	1935 June 30.	„ General Oncost Summary . . .	189
		£216			£216
			1935 July 1.	By Reserve b/d . .	£44

Repairs to Plant

Dr.					*Cr.*
1935		£	1935		£
June 30.	To Materials per Purchase Summary . .	46	June 30.	By Stores Account . .	46
	„ Wages Transferred .	174		„ Productive Wages .	174
		£220			£220

Motor Expenses

Dr.					*Cr.*
1935		£	1935		£
June 30.	To Sundries per Purchase Summary—		June 30.	By Stock of Petrol and Oil c/d . . .	26
	Petrol and Oil .	386		„ Stores Summary .	386
	Licences and Tax .	78		„ General Oncost Summary . . .	338
	Repairs . .	260			
	„ Stores Summary Account . . .	26			
		£750			£750
1935 July 1.	To Stock of Petrol and Oil b/d . . .	£26			

Travelling Expenses

Dr.					*Cr.*
1935		£	1935		£
June 30.	To Sundries	1,247	June 30.	By General Oncost Summary . . .	1,247
		£1,247			£1,247

Dr. PRINTING, STATIONERY AND ADVERTISING Cr.

		£			£
1934 July 1.	To Stock of Stationery b/d	116	1935 June 30.	By Advertising Expenditure c/f . .	160
1935 June 30.	„ Sundries	1,141		„ Stock of Stationery c/d	135
				„ General Oncost Summary . . .	962
		£1,257			£1,257
1935 July 1.	To Stock of Stationery b/d	135			
	„ Advertising Expenditure b/f . .	160			

Dr. DISCOUNTS Cr.

		£			£
1935 June 30.	To Sundries	235	1935 June 30.	By General Oncost Summary . . .	235
		£235			£235

Dr. BANK CHARGES Cr.

		£			£
1935 June 30.	To Charges— Dec. 31st, 1934 and June 30th, 1935 .	32	1935 June 30.	By General Oncost Summary . . .	32
		£32			£32

Dr. PLANT DEPRECIATION Cr.

		£			£
1935 June 30.	To Plant Account, 5% for one year on £2,120)	106	1935 June 30.	By Works Oncost Summary . . .	106
		£106			£106

Dr. STORES SUMMARY ACCOUNT Cr.

			£			£
1934 July 1.	To Materials in Stock .		4,659	1935 June 30.	By Direct Materials Summary (Requisitions valued) . . .	13,941
1935 June 30.	„ Goods Received into Store per invoices—				„ P.O. 3—Plant Maintenance . .	46
	Purchased Materials	£14,272			„ P.O. 9—Motor Expenses, Petrol and Oil used . .	360
	Petrol and Oil	386			„ Stocks of Materials in hand c/f . .	4,913
	Materials for Plant Repairs	46			„ Motor Expenses Account . . .	26
			14,704		„ Balance—to Materials Suspense Account .	77
			£19,363			£19,363
1935 July 1.	To Balance b/d—		£			
	General Stores	£4,913				
	Petrol .	26				
			4,939			

Dr. DIRECT MATERIALS SUMMARY *Cr.*

		£			£
1935 June 30.	To Materials used in Production per requisitions . . .	13,941	1935 June 30.	By Transfer—Trading Account . .	13,941

Dr. WAGES SUMMARY *Cr.*

			£			£
1935 June 30.	To Wages Paid—			1935 June 30.	By Direct Labour Summary (Wages charged in costs) . .	11,554
	Productive	£12,385			,, P.O. 3 Plant Maintenance	174
	Unproductive	1,861			,, Indirect Labour P.O. Nos.	1,428
	Wages Productive .	159	14,405		,, Wages Productive (N.L.)	126
					,, Wages on Work in Progress c/d . .	1,000
					,, Wages Suspense .	123
			£14,405			£14,405
1935 July 1.	To Wages on Work in Progress b/d . .		£1,000			

Dr. WAGES SUSPENSE *Cr.*

		£			£
1935 June 30.	To Wages Summary—Wages paid not accounted for. .	123	1935 June 30.	By Transfer Profit and Loss Account .	123

Dr. P.O. 3 PLANT MAINTENANCE *Cr.*

		£			£
1935 June 30.	To Materials used per Requisitions . .	46	1935 June 30.	By Transfer Works Oncost Summary . .	220
	,, Labour expended per Wages Summary .	174			
		£220			£220

Dr. P.O. 9 MOTOR EXPENSES (PETROL AND OIL) *Cr.*

		£			£
1935 June 30.	To Petrol and Oil used ex Stores Summary .	360	1935 June 30.	By Transfer General Oncost Summary .	360
		£360			£360

Dr. MATERIALS SUSPENSE *Cr.*

		£			£
1935 June 30.	To Transfer Stores Summary—Materials not accounted for .	77	1935 June 30.	By Transfer Profit and Loss Account. .	77

Direct Labour Summary

Dr.			*Cr.*		
1935		£	1935		£
June 30.	To Productive Labour charged in Costs per Summary . .	11,554	June 30.	By Transfer Trading Account . . .	11,554

Indirect Labour Summary

Dr.			*Cr.*		
1935		£	1935		£
June 30.	To Unproductive Labour. Accumulation of details charged to P.O. numbers for Supervision, General Works Odd Labour, Stores and Warehouse, and other items of Labour cost classed as unproductive (ex Wages Summary) . .	1,428	June 30.	By Works Oncost Summary . . .	1,428
		£1,428			£1,428

Works Oncost Summary

Dr.			*Cr.*		
1935		£	1935		£
June 30.	To Transfers—		June 30.	By Transfer Profit and Loss Account .	1,754
	Indirect Labour Summary . .	1,428			
	P.O. 3 Plant Maintenance . .	220			
	Plant Depreciation .	106			
		£1,754			£1,754

General Oncost Summary

Dr.			*Cr.*		
1935		£	1935		£
June 30.	To Transfer P.O. 9 Motor Expenses . .	360	June 30.	By Transfer Profit and Loss Account. .	5,204
	,, Rent, Rates and Insurances . .	721			
	,, Lighting and Heating.	189			
	,, Salaries . . .	1,120			
	,, Travelling Expenses .	1,247			
	,, Printing, Stationery and Advertising .	962			
	,, Discounts . . .	235			
	,, Bank Charges . .	32			
	,, Motor Expenses (other than materials) .	338			
		£5,204			£5,204

Accounts prepared after linking of Cost Ledger with Nominal Ledger—

TRADING ACCOUNT

Dr. FOR THE YEAR ENDED 30TH JUNE, 1935 *Cr.*

		£		£
To Materials Consumed		13,941	By Sales	33,860
,, Direct Wages Expended		11,554		
,, *Works Oncost—*				
P.O. Numbers	£1,428			
Plant Maintenance	220			
Plant Depreciation	106			
		1,754		
		27,249		
,, Gross Profit		6,611		
		£33,860		£33,860

PROFIT AND LOSS ACCOUNT

Dr. FOR THE YEAR ENDED 30TH JUNE, 1935 *Cr.*

		£		£
To Wages Suspense for Wages Paid not accounted for		123	By Gross Profit	6,611
,, Materials Suspense for Materials not accounted for		77		
,, *General Oncost—*				
Motor Expenses	£698			
Rent, Rates and Insurances	721			
Lighting and Heating	189			
Salaries	1,120			
Travelling Expenses	1,247			
Printing, Stationery and Advertising	962			
Discounts	235			
Bank Charges	32			
		5,204		
		5,404		
,, Net Profit		1,207		
		£6,611		£6,611

Note. It will be realized that the balance on Materials Suspense Account may have arisen partly as the result of the fixed pricing of requisitions covering the transfer of materials purchased at varying prices—or the fixed pricing of the quantity of such materials in stock.

In this rather more elaborate illustration, the complete merging of the costing records as part of the double-entry has been achieved, and the full accounting of a subsequent period can be made as a matter of routine by the co-operation of the Accountancy and Cost Office organizations.

Where the cost detail available is sufficient, the accounts can at will be made to show a comparison between oncost expenditure and oncost recovery. This can be done, of course, only where the Cost Office organization does or can embrace the compilation of a complete Cost Account of the unit, job or process, the total cost of which is shown to include a specific addition (by way of percentage or otherwise) for works and general oncost. If this procedure is adopted, the preparation of Oncost Summaries will provide the total recoveries included in Sales, and the total Oncost Suspense included in Finished Stock or Work in Progress.

With this information the Trading Account credit for sales can be divided into its constituent parts, e.g. as follows—

		£
	Total Sales	33,860
	Works Oncost recovered—from Works Oncost Summary	1,489
	General Oncost recovered—from General Oncost Summary	5,079
while	Works Oncost included in Stock and Work in Progress may be assumed at . .	200

The Trading and Profit and Loss Account given on page 217 may now be redrawn as follows—

TRADING AND PROFIT AND LOSS ACCOUNT

Dr. FOR THE YEAR ENDED 30TH JUNE, 1935 *Cr.*

		£			£
To Materials Consumed .	£13,941		By Sales . . .	£33,860	
Add Adjustment for Works Oncost assumed to be included . .	200		*Less* Works Oncost Recoveries included	1,489	
		14,141		32,371	
,, Direct Wages expended . .		11,554	*Less* General Oncost Recoveries included	5,079	
,, Gross Profit carried down .		1,597			27,292
		£27,292			£27,292

(Trading and Profit and Loss Account—continued)

		£		£
To *Works Oncost* . . .	£1,754		By Gross Profit b/d . . .	1,597
Less assumed to be included in Work in Progress . .	200			
	1,554			
Less Works Oncost Recoveries . .	1,489			
Works Oncost not recovered . .		65		
„ Wages Suspense for Wages paid not accounted for . .		123		
„ Materials Suspense for Materials not accounted for . .		77		
„ *General Oncost* . .	£5,204			
Less General Oncost recoveries . .	5,079			
General Oncost not recovered . .		125		
„ Balance—Net Profit . .		1,207		
		£1,597		£1,597

This showing may be obtained either by definite transfer in the books from Sales Account or by memorandum adjustments on the final accounts. If the details are themselves available, there seems no reason why the adjustments should not be the subject of complete and permanent entries in the books. Also a matter of opinion is whether the figure of oncost recoveries should be shown in the Profit and Loss Account as deductions from oncost expenditures, or whether the recoveries should be credited separately in the same section of the final accounts.

Whatever views may be held on these points, it must be agreed that where the existing costing system is in any sense complete in form and operation, considerable advantage can be gained by carrying the matter to its logical conclusion—by ensuring in the first place that the costing figures are themselves controlled by the same machinery as governs the financial records, and secondly that the balanced figures should be made use of to the fullest possible extent.

Where a system of budgetary control is in effective operation, the speedy preparation of interim detailed accounts in the form suggested can be most usefully synchronized with the periodical examination of the budget figures and comparison of happenings with anticipations.

It will be obvious that a Trading and Profit and Loss Account produced in the form shown on pages 218 and 219 must, by the manner of its preparation, have infinitely more value to any management than any form of account prepared from the financial records alone. The ejection as separate items of—

	£
Labour expenditure not accounted for	
Materials not accounted for	
Works Oncost not recovered	
General Oncost not recovered	

must provide a valuable starting point for practical and worth-while investigation, and will provide the only means by which true comparison can be made between expectations and realizations, whether these are set out in the form of carefully prepared budgets or in some other more indefinite form.

The true gross profit cannot be ascertained until such extraneous items as those listed above have been thrown out for separate consideration.

It will be appreciated that the question of oncost can be dealt with to what detailed extent is desired. For the purpose of illustration two main classifications of "works" and "general" oncost have been used—but further subdivisions as desired is merely a matter of office arrangement—and in this connexion much will depend on the nature of the organization concerned.

A separate oncost showing for supervision may be of particular value in one case, while in another details of transport maintenance or operating may be of special importance.

It is submitted that the suggested incorporation of costing records as part of the double-entry should benefit any sizable organization whose trading operations are fairly detailed. There will follow as a matter of course a closer co-operation between the Cost Office and the Accountant's Department, and this in itself will be of inestimable help in the efficient administration of the concern.

1. What checks can be placed upon costing figures to confirm their general accuracy?

2. By what methods can the costing figures be reconciled with the information obtained from the financial accounts?

3. If the cost of purchases (adjusted by stock values at the beginning and end of the period) exceeds the value of material used during the period as shown by the cost records, how could the difference be explained?

CHAPTER XIV

THE USE OF GRAPHS AND CHARTS

THE value of any form of presentation of facts can be measured only by its result. If the form of presentation adopted clearly indicates the lesson which it is intended to convey, that method is probably a correct one.

Just as inspection of a well executed picture will give more definite and probably more correct impressions than any quantity of descriptive written matter, the display in "visible" form of business figures is sometimes of the greatest value.

The following points must be carefully considered in this connexion—

(1) The subject-matter must be suitable for graphical representation.

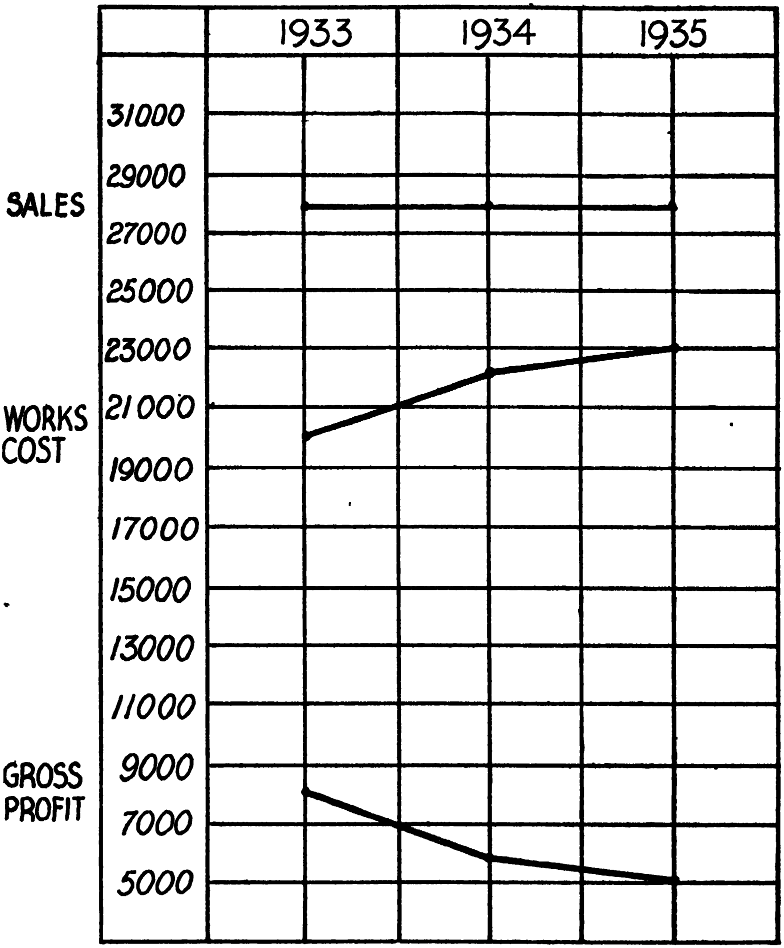
(2) A form of representation must be chosen which will give a helpful result and will avoid any misleading conclusions.

(3) The precise object of so displaying the figures must be kept fully in mind.

The following figures will serve to illustrate some of the points—

	1933		1934		1935	
	£	£	£	£	£	£
Materials consumed .	10,000		12,000		10,000	
Productive Labour .	8,000		8,000		10,000	
Works Expenses .	2,000		2,000		3,000	
		20,000		22,000		23,000
Gross Profit . .		8,000		6,000		5,000
Sales . . .		£28,000		£28,000		£28,000

A comparison of works cost with gross profit could be made as follows—

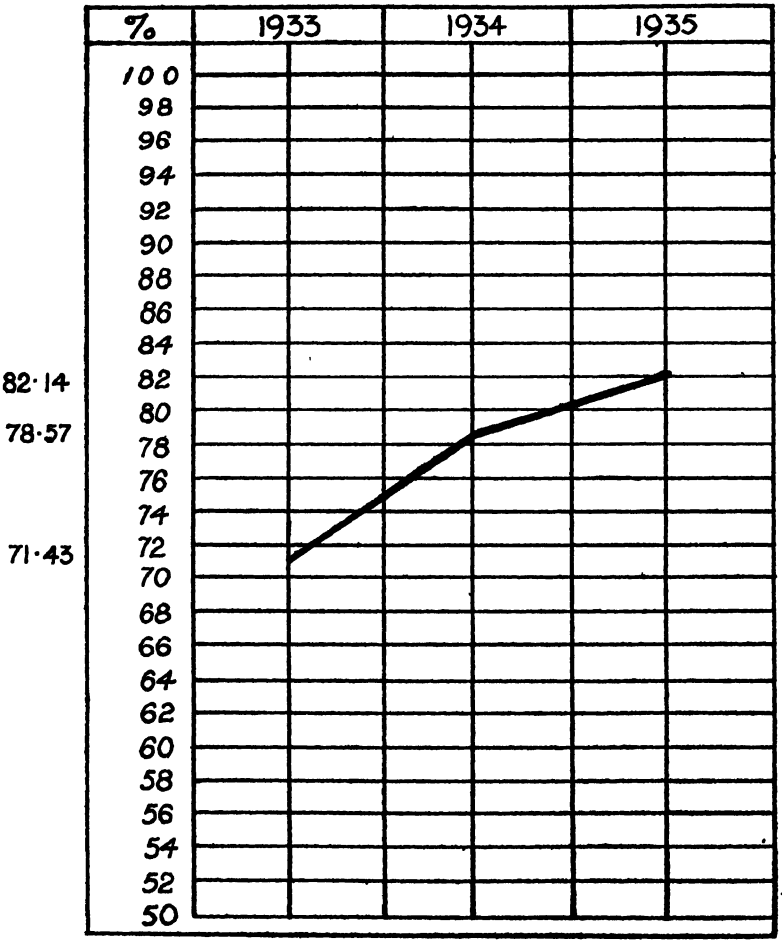


The chart quite clearly indicates that, sales having remained at a constant figure over the three years, gross profit has fallen, while works cost has increased year by year.

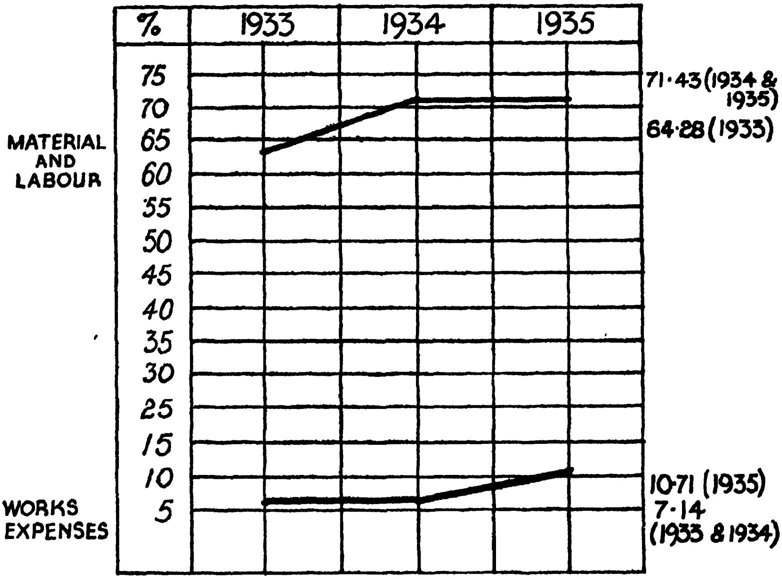
But since it is quite obvious that if works cost increases, gross profit *must* fall correspondingly, the figure of sales being unaltered, no helpful lesson can be derived from any "display" of these figures.

Since the amount of gross profit in the example taken must be entirely dependent on the total of works cost, it is in the figures of works cost that we have the only subject suitable for effective practical representation.

Treating works cost as a percentage of sales, we have—



or, separating Material and Labour from Works Expenses—



In this form the chart indicates that in 1935 material and labour costs have remained constant while there has been a sharp increase in the proportion of works expenses to sales.

The increase in material and labour figures in 1934 as compared with 1933 will doubtless have been the subject of previous investigation and may have been accepted as correct. If so, the maintenance of the same proportionate cost in 1935 may be regarded as satisfactory. Alternatively, if the increase in 1934 was then regarded as unjustified, the present showing indicates that no improvement has resulted from the operations of the following year.

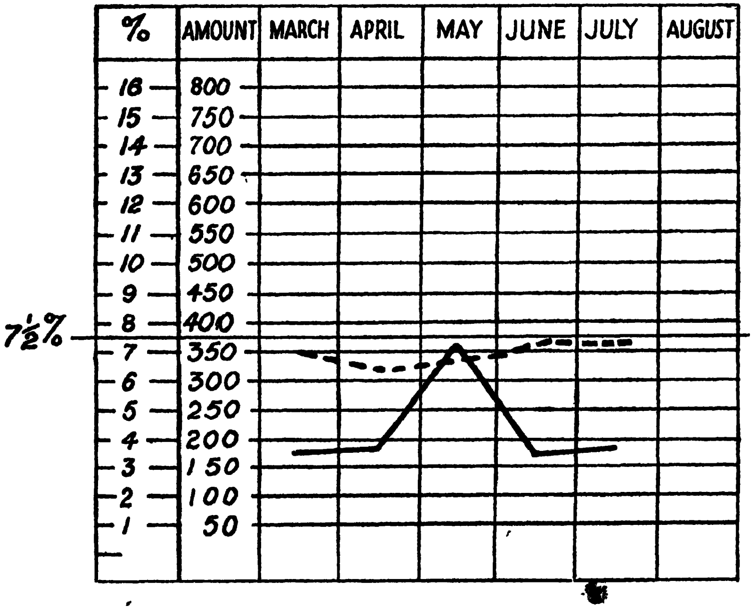
The increase in works expenses is apparent and can be made the subject of investigation and decision.

Whether money values or percentages should be made use of depends on the detail of the information to be displayed, and care must be taken that a misleading showing does not result from the use of a wrong medium.

As an example, figures of travellers' selling expenses and sales in a given case may have been—

	March	*April*	*May*	*June*	*July*
Sales . . .	2,500	2,800	5,200	2,400	2,600
Selling Expenses .	175	180	360	170	185
Percentage . .	7·0	6·4	6·9	7·1	7·1

If the relation of these figures is shown graphically, we have—



If as a matter of policy it had been decided that selling expenses should not exceed 7½ per cent of sales, the above showing would appear satisfactory.

An examination of the detailed figures, however, suggests that the selling expenses in the month of May—although well below the standard of 7½ per cent of sales—were abnormal in amount. It may be that the greatly increased sales in the month of May did necessitate the expenditure of a correspondingly increased amount by the travellers, but if the increase in sales was rather in the nature of a fortuitous circumstance, it may well be that the expenditure of £360 was unjustified.

The inclusion in the chart of both value and percentage serves to bring the point to the view of those for whose benefit the showing is made.

Care is necessary, therefore, both in choosing subjects for graphical representation, and in deciding the manner in which that representation can be best made. In addition, the results shown must be given very careful consideration, having regard to any unusual relevant circumstances, the ignoring of which may induce wrongful conclusions.

It cannot be too much stressed that the indiscriminate use of charts or graphs gives extremely misleading and often dangerous results.

In general, a comparison from period to period of any form of outlay or revenue which is expected to remain fairly constant is a good subject for a continued graphical representation. The cost of general plant and property maintenance in a factory, for example, or the periodical output of a works department in which normal production goes on steadily at even pressure, can be charted with advantage since the chart will indicate unmistakably the existence of any abnormal circumstances which have interrupted the normal course of events.

Similarly, output values in relation to Planning Department estimates could be displayed effectively, as could the rise and fall in particular stocks held where this information is of special importance.

In practice, other suitable matters will readily suggest themselves. The precise method of presentation has to be left to the individual who, having regard to his purpose in so doing, will display the matter so that the greatest possible amount of really valuable information is set out in the most direct and effective manner.

1. What are the uses of graphs?
2. Generally, what types of fact are suitable for graphic presentation?
3. What criticisms would you make of a graph which shows that in each of six successive months material and labour production costs have appreciably decreased?

CHAPTER XV

PLANT AND PATTERNS—INTEREST ON CAPITAL EMPLOYED

IT has already been indicated that depreciation is one of the elements which go to make up the sum total of overhead charges or oncost, but it is difficult to deal adequately with this item unless there exists some reliable history of the particular asset which is to be subjected to depreciation.

DEPRECIATION

Machinery is necessarily subject to depreciation from some cause or other, yet it is often found that there exists no form of record or history of this very important asset. Moreover, where records do exist they are frequently incomplete. Whether a business is large or small, there is no reason for not keeping some record of the plant which is installed. The record itself may be in a very simple form or in a more elaborate form according to the requirements of the business, but in any case need not lead to any great expense in its compilation and the necessary keeping of the records up to date, once the register has been installed.

There is certain information which it is essential that any such record should show, viz.—

(1) The date of purchase.

(2) The actual cost price.

(3) The net value of each individual plant unit at the beginning of an agreed accounting period.

The example given illustrates a simple but useful form of Plant Register.

The importance of providing reliable records or inventories of valuable assets being granted, it is now possible to consider the question of depreciation. What is depreciation? It has been defined as "reduction in worth caused by wear and tear through use and by obsolescence and inadequacy." It seems difficult to quarrel with this definition, for it must be accepted that an asset should not be stated at a figure in excess of its true value. What its value is depends upon a variety of circumstances, but it is quite certain that it is not worth its original cost price if it has been subjected to wear and tear, or has been superseded by an improvement in type or has lost some portion of its capital value owing to the intervention of some circumstance which has made it impossible to utilize it to its original capacity.

Although it is possible to be quite definite as to what depreciation is, and quite definite as to the factors and circumstances which make it necessary to provide for it, yet to provide for it adequately and strictly in accordance with the facts is not easy to accomplish. It is possible, however, to calculate depreciation at a figure which is substantially correct and quite satisfactory for ordinary business purposes, if inventories have been kept satisfactorily. Depreciation is usually calculated on one of the following alternative bases—

(*a*) By the *fixed instalment method*, involving the writing off periodically of instalments of an original value.

(*b*) By the *reducing instalment plan*, which provides as depreciation a proportion of the net written down value of the asset at the commencement of each accounting period.

(*c*) By the *annuity method,* under which the equivalent of a yearly sum written off the value of the asset is invested outside the business to provide a capital fund for the replacement of the asset at the end of its estimated life.

(*d*) By the *re-valuation* of the asset from time to time.

Too often depreciation is governed and depends upon financial policy, and not so much upon the inherent capital value of the asset which is under observation. It is difficult to understand (quite apart from the commercial desirability of providing for adequate depreciation) why some general legislative measures are not taken to enforce the provision of adequate depreciation before dividends are declared, in view of the fact that under the Companies Act a payment of dividend out of capital is illegal. The position might well arise where the provision of adequate depreciation in the accounts would make the declaration of a dividend an impossibility. The object of calling attention to this particular point is to show how necessary it is to provide adequately in costs for depreciation, so that the sale prices obtained, based on actual costs, will provide a surplus large enough to allow a correct charge for depreciation to be debited in the financial accounts.

When considering the depreciation of plant, machinery and tools, it is necessary to bear in mind that the technical and industrial progress of the present age is responsible for plant and tools wearing out or being superseded more quickly than in any previous stage of the industrial era. This is not necessarily brought about only by the process of deterioration due to continual use, but also through obsolescence or the superseding of a particular unit of plant or tools by something which is far improved from the productive point of view. So much is this the case that otherwise valuable plant and tools are often discarded solely because work cannot be produced with their aid at a competitive price. Similarly, methods of paying the operator also affect any consideration of the question of depreciation. In these days when payment for services is so increasingly by piece-work methods, it is quite likely that the plant and tools will be subjected to more severe treatment, necessitating a greater amount of depreciation being provided for than where time is the basis, since the main consideration is the number of pieces produced per hour.

Apart from these considerations there are others, such as the type of plant from a mechanical point of view; the position of the plant from a power-distribution point of view, and the type of work upon which the plant or tool is to operate.

Generally, in regard to depreciation, the method by which provision is to be made should receive more consideration than is frequently the case. A general practice is to provide a given percentage of either the original value or of the depreciating value, but on the other hand there is quite a strong case where the circumstances are favourable for what may be termed *differential depreciation rates.*

While differential rates may involve more detailed work, and perhaps under certain conditions their use will not prove of great value, in other circumstances where the class of industry and trade necessitates the use of a machine hour rate or similar method of assessing oncost, it is advisable that differential rates should be adopted. Depreciation may be calculated separately on each class of machine, or the individual units in each class, on the plant in each section or department or under what classifications are considered expedient. Plant records should be arranged to correspond.

It will be seen that without a reliable Plant Register it is not strictly possible to apportion depreciation properly.

What is essential is just this, that after allowing for the residual value, that is, the value of the asset at the end of its working life, the amounts provided in the interim by way of depreciation should be such that their sum total, plus the residual value, should equal the original capital value of the asset.

Owing to the rapid wastage which takes place in loose tools, it is not always practicable to keep any specialized form of record other than the inventory of important items, which should be kept by the Tool Store. If the Tool Store is controlled and the records kept on the principles applying to the control of the Production Material Stores, then the particulars available at any given moment should be sufficient to provide a periodical valuation for accounts purposes and any information otherwise needed.

PATTERNS AND DESIGNS

With regard to patterns and designs, adequate housing facilities should be provided for their safe keeping, and a proper record or inventory written up and maintained. Designs, drawings, and patterns should always be associated with their Drawing Office number to facilitate quick reference. The inventory will also provide the key to the history of a particular design or pattern and enable questions arising therefrom to be dealt with intelligently by reference to the facts.

The treatment of patterns will depend mainly on the nature of the pattern and the purpose for which it was made or purchased. Where the pattern is one which is exclusively used in the creation of a particular piece of work and for that piece of work only, and it is not expected that the production will be repeated, then the whole of the pattern cost should be included specifically in the total cost of the job. On the other hand, where the pattern is of a general character and is used in the making of a recurring unit of production, then the pattern may be treated as a capital asset, and depreciation provided for according to the circumstances, either by periodic re-valuation or on lines similar to those used in the case of plant. The amount or rate of depreciation can only be assessed by considering the state of the patterns and the present need for their use in conjunction with the information given by the inventory. It should be pointed out that patterns which have become obsolete must be so designated in any records and their value written off.

INTEREST ON CAPITAL EMPLOYED

There is still considerable divergence of opinion as to whether or not interest on capital employed in a business should be provided for as an element of oncost.

The arguments for and against may be summarized briefly as follows—

(1) *In favour of including interest on capital in computing oncost.*

(*a*) That since the interest is a definite charge and creates a liability which has to be met, it is as much an oncost expense as any other non-productive item of expenditure.

(*b*) That the interest has to be paid (e.g. to a bank or on debentures) whether or not a trading profit is made and that, in consequence, it cannot be argued that interest on capital is an appropriation of profit.

(*c*) That since all capital employed should earn a certain minimum rate of interest, an undertaking whose capital is free of any fixed charge for interest (e.g. a limited company whose capital consists entirely of ordinary shares) is entitled to treat such minimum interest as an oncost provision, in spite of the fact that no actual expenditure in this connexion will arise.

(2) *Against the inclusion of interest on capital in oncost.*

(*a*) That interest on capital cannot be regarded as an item of expense unless the need to pay it does arise and that, therefore, where the item occurs it can only be regarded as an extraordinary expense and treated as such by exclusion from oncost.

(*b*) That the undertaking which does not have to pay specific interest on borrowed capital is entitled to the benefit of its good fortune by way of a larger profit than its competitor which has to share its profit with its financing agency because it has had to obtain its capital as it best could.

(*c*) That the price to the customer should not include more than a reasonable remuneration for supplying goods or rendering services, that a normal selling price based on accurate costs is fair in this respect, and that the further inclusion of a charge for interest would unfairly inflate the cost to the customer.

Much could be added on this very vexed question without arriving at any definite result.

It is submitted, however, that the strongest argument against the inclusion of interest on capital as oncost is that to include it must necessarily involve the customer in paying for the cost of the goods and the labour on them, a due proportion of the expenses of the business, a reasonable profit and an additional surcharge in respect of interest.

Profit is the remuneration of capital and such profit in a speculative business must consist of—

(1) a minimum return on capital equivalent perhaps to what investment in non-speculative securities would produce, and

(2) a further return which in normal circum-

stances should compensate the investor for the risk involved by investment in a speculation.

Where, for example, a limited company in a strong position has been able to obtain all its capital by the issue of ordinary shares, it will be realized that a dividend of, say, 10 per cent must be regarded as including both a basic "pure investment" return of, say, 4 per cent and a further return as a bonus on speculation.

The dividend to the extent of 4 per cent can therefore be considered as equivalent to the interest which a less fortunate competitor has to pay for the use of capital which has had to be obtained by borrowing.

Dealing with the matter quite generally, it can be fairly argued that given precisely equal conditions of space, equipment, labour, buying facilities, management and customer possibilities, two concerns should produce in the same period the same value of saleable goods and should in each case sell those goods for the same amount. The difference between total cost and selling price will in each case give the same resulting profit.

If one concern has borrowed capital, the above facts will not be altered, but the borrowing carries with it the obligation to earmark a share of the profit balance for the benefit of the borrower by way of specific interest.

---

1. In estimating the cost of depreciation of fixed assets what factors should be considered?
2. What information should be contained in a Plant Register?
3. Summarize the arguments for and against the inclusion of interest on capital employed as an item of oncost.

CHAPTER XVI

A MANUFACTURING ORGANIZATION

THE successful manufacturing business is not a rarity. There are many such undertakings, large and small, which make regular profits and do not seem to be particularly subject to the fluctuations of fortune which attend so many other concerns.

While the continued success of a business does not necessarily imply that it operates by means of a well-planned organization, it is safe to say that many existing undertakings owe their continued well-being and in some cases their very existence to the fact that their progress has been the subject of careful planning along well regulated lines.

It is apparent that the whole process of carrying on a manufacturing business, involving its commercial, statistical and administrative departments in addition to its works or production sections, should be in accordance with plans definitely laid down and rigidly followed.

It can be said in regard to such an organization that—

(*a*) It must be based upon a definite general policy.

(*b*) It must be comprehensive; while for reasons of convenience or economy, some sections may be allowed to operate jointly, there must be no unattached sections or departments.

(*c*) It must ensure that all sections are correctly inter-related.

(*d*) It must function so that every section is directly responsible to the management, through recognized channels.

If any portion of an organization of the type under consideration is allowed to function haphazardly or outside the general plan, considerable dislocation may occur, either in regard to its contact with other sections or for the reason that information as to the doings of the department does not pass readily enough to the controlling body.

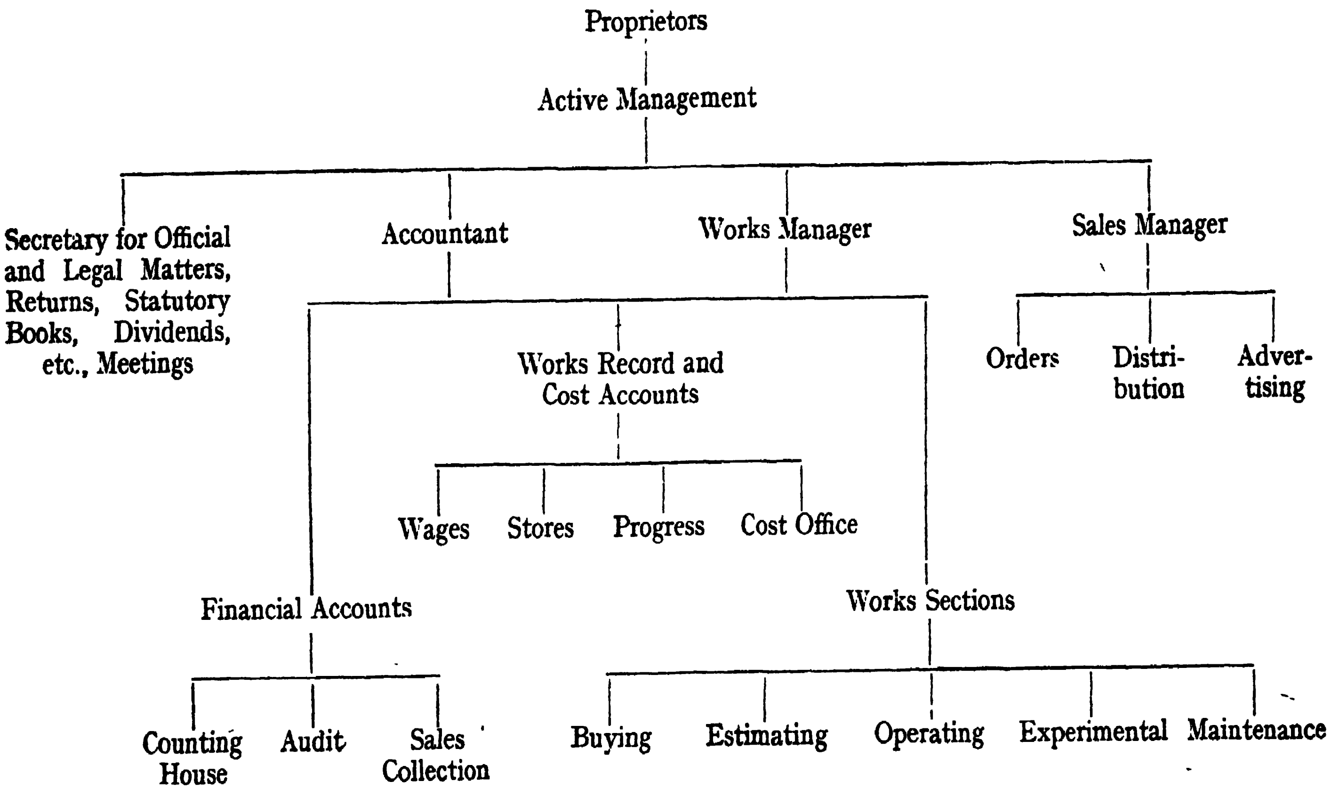
The delegation of authority is an essential to good organization, but it must be understood that the distribution of responsibility must not be allowed to interfere with the strict carrying out of defined policy.

The diagram on page 240 is illustrative of the points noted.

The prime responsibility to the proprietors (or capital invested) is in the hands of the active management, however this may be constituted.

Delegated responsibility is placed with the Secretary, the Accountant, the Works Manager, and the Sales Manager, who jointly control all departments of the business, viz. secretarial, financial, operative, and selling. The departments mentioned must be in contact with each other to avoid overlapping and to obtain the greatest possible efficiency.

The Cost Office and Works Record Section is regarded as the joint sphere of the Accountant and Works Manager, each of whom should make full use of the information available in the section.


Proprietors
Active Management
Secretary for Official and Legal Matters, Returns, Statutory Books, Dividends, etc., Meetings
Accountant
Works Manager
Sales Manager
Works Record and Cost Accounts
Orders
Distri-bution
Adver-tising
Wages
Stores
Progress
Cost Office
Financial Accounts
Works Sections
Counting House
Audit
Sales Collection
Buying
Estimating
Operating
Experimental
Maintenance

It will be noted that every section—administrative or detail—is under the direct control of a responsible official who in turn becomes responsible to the centralized control of the Directors or other active administrators of the policy which they decide and for which they have to account to the proprietors or shareholders.

In some cases, if the undertaking is small, the duties of various of the sections may be combined in one department. This can be done without losing control or efficiency if sufficient care is taken that the inter-relation of the Manufacturing organization with the Administrative and Executive sections is absolute.

Each department of an organization must contribute to the general smooth running of the whole by applying goodwill and common understanding to its relations with the other sections.

Organization and control is now more carefully studied and more fully understood than used to be the case, and in result, management now does its part in convincing employees in all departments—operative or statistical—that the success of the organization is to an extent dependent upon the efforts of each individual member.

To this understanding is due the fact that changes in policy or in the means of executing that policy are nowadays carefully considered before being decided upon. It is realized that a change of little apparent present importance may have unexpected and far-reaching results if dislocation should ensue.

The diagram used to illustrate the points of this chapter makes no specific provision for a

"Research" Section, sometimes an important feature of a modern organization. Such a section may be a very highly scientific and technical aid to the management, and while, by reason of its purpose, it must have access to all other departments, it should be made directly responsible to the active management and not be subsidiary to any of the operative or administrative sections.

Generally, any planned organization must provide—

(*a*) The flow of authorized work through the departments by a definite routine; and

(*b*) The flow of required information back to the Administrative Sections and from them to the Management, collated as circumstances may make necessary.

---

1. What are the distinguishing features of the well-organized business?
2. What will such an organization demand in regard to—
    (*a*) Works production,
    (*b*) Financial and costing records?
3. What place in the organization would be allotted to a separate department created to compile statistics relating to the operations of the business?

CHAPTER XVII

COSTING AND INCOME TAX

INCREASED rates of taxation have given rise to the exercise of greater care by both the taxpayer and the Inland Revenue authorities. The incidence of taxation is now so important that the taxpayer is keenly anxious to avoid the burden of any form of tax beyond his just liability. The Revenue is similarly anxious to ensure that income or profits bear tax to the full extent to which they are liable.

Particularly in regard to business profits does this apply, and the settling of income tax computations has become a very important and frequently somewhat difficult matter. With rates of tax ruling high, it is more than ever necessary to base computations on carefully ascertained and proved facts.

Much can depend, for example, on the allocation of large items of expenditure between capital and revenue. While it is fairly easy to apply general principles in distinguishing capital from revenue expenditure, it is more difficult in many cases to agree upon the precise separation of the expenditure into the respective classifications.

It is obvious, therefore, that the existence of a definite and comprehensive system of costing can help materially in the obtaining of a correct settlement when points of difficulty arise.

The student will do well to bear in mind this additional advantage which accrues from the installation of costing methods.

Following are given some indications of matters, the discussion of which for income tax purposes can be materially assisted and often curtailed by a presentation of the relevant facts from the costing records.

(a) REPAIRS TO PLANT OR BUILDINGS

Maintenance of plant or buildings is an "allowable expense" for income tax purposes. The appearance in the Trading or Profit and Loss Account of expenditure of this nature carries with it the need to convince the Revenue Authorities that the total shown has been expended by way of maintenance and does not contain any outlay of a capital or foreign nature.

The onus of proof is here upon the taxpayer, who usually finds it necessary to extract from invoices or other records full details of the items making up the total claimed. Further information will be demanded in regard to large individual items as to the exact nature of the outlay and the circumstances of its being expended, to the extent necessary to satisfy the Inspector of Taxes.

Where a costing system exists, the outlay will have been allocated to its correct classification *at the time of the expenditure,* and will provide the best possible evidence of the accuracy of the allocation. The details of materials and wages expended will be readily available in the appropriate Cost Summary, which can be produced without delay.

It will be sufficiently obvious that such details, compiled according to the facts, must be more reliable for all purposes than any subsequent reconstruction of the history of the outlay.

(b) ADDITIONS TO PLANT OR BUILDINGS

The strict allocation of capital outlay between plant and buildings is a definite necessity in the quest for a correct allowance for wear and tear.

The operation of a costing system usually carries with it the use of a Plant Register in which all outlay on plant is adequately recorded in successive periods and from which full information is available as to the description, position, original cost, etc., of every item of plant. The register usually contains also particulars of sales or replacements of plant items, which information is especially useful in the settling of claims for obsolescence.

It must be remembered that rates of wear and tear vary considerably with the type of plant operated. While, for example, the rate applicable to what may be termed general plant is 5 per cent, this rate is increased to 7½ per cent in the case of electrically-driven plant, while other and higher rates apply in certain classes of business where special plant is employed or particularly heavy usage is suffered.

The Plant Register can be valuably designed to record these special points in order that full credit for all particular circumstances may be given in fixing wear and tear figures.

The following is a list of some special types of plant with the agreed rates of wear and tear at present applicable.

These rates are usually fixed by the Board of Inland Revenue to apply to the particular trade concerned on the application of an authoritative body representing that trade.

AGREED NORMAL RATES OF DEPRECIATION

Type of Business	Rate per cent	Remarks
Bakery	6	Plant and Machinery generally.
Brewing	6½	General Plant.
	7½	Electric Motors, Dynamos, etc.
	10	Bottling Machines.
Chemical	15	Acid Plant.
	7½	Electrical Plant and Chemical Plant other than above.
	5	Other Plant.
Drop Forgers and Stampers	7½	Plant and Machinery generally.
Dyeing	7½	Plant and Machinery generally.
Electric Furnaces and Plant used in connection with them	12½	Including all gear, cable connections, etc., but excluding brick parts, accessory tools and equipment.
Electric Light Undertaking .	3	Cables.
	5	Plant and Machinery.
Engineers making Precision Tools (e.g. Twist Drills, Dies, Screwing Tackle)	9	General Manufacturing Machinery.
	7½	Electrical Plant.
	5	Gas Engines, Boilers, Shafting, etc.
Farming	5	Steam Boilers and Engines and General Fixed Plant.
	7½	Electrical Installation.
	22½	Petrol or Oil-driven Tractors and Cultivators.
	15–20	Motor Vehicles—Lorries and Vans.
	10	Farm Machinery and Implements, Poultry Sheds and Incubators.
Fishing Tackle . . .	5	Engines, Boilers and Shafting.
	6	Fishing Rod and Hook-making Plant.
	7½	Electrical Plant.
Flour Mill . . .	5	Steam Power and Shafting.
	7½	Electric Plant and Motors, Gas and Oil Engines (other than Diesel), Roller Mills, Automatic Weighers, Elevators and Conveyors.
	10	Other Plant and Machinery (including Diesel Engines).
Hemstitching . . .	5	Engines, Boilers, Shafting and Gearing.
	10	Hemstitching Machinery.
Hosiery	5	Engines, Boilers, and Shafting.
	10	Process Plant.

AGREED NORMAL RATES OF DEPRECIATION—*contd.*

Type of Business	Rate per cent	Remarks
Match Manufacturing	5	Steam Engines, Boilers, Shafting, Lathes, Woodcutting and Wax-taper Making Machinery.
	7½	General Plant and Machinery (including Electric Motors), Match-making and Box-fitting Machines.
Nail Making	5	All Plant and Machinery.
Paper Box Making	7½	All Plant.
Saw Mills	7½	General Saw Mill Plant.
Shoe Making	5	Engines, Boilers and Shafting.
	10	Process Plant.
Tailoring Trade	9	General Plant and Machinery.
Wrought Iron Industry	7½	Plant and Machinery generally.

The rates quoted apply to the "written down" value. In addition, it may be noted generally that vans and trade vehicles are subject to a rate of 15 per cent if propelled by steam power and 20 per cent if propelled by power derived from internal combustion engines.

(c) MOTOR VEHICLES

Here also a costing system will include records of the original purchase and subsequent history of every motor vehicle owned with accurate particulars of sales or allowances in part exchange. Full information is available, therefore, for the obtaining of adequate allowances for wear and tear and for obsolescence claims.

(d) TRANSPORT COSTS

The costing records can supply very valuable information on this matter. The respective running costs of vehicles of different types or of each of a number of similar vehicles can be accurately recorded as a matter of routine. Records can also be available of abnormal expenditure by way of repairs and of the circumstances in which the outlay arose.

Mileage records can be kept for each vehicle and this information will often be found of value from the viewpoint of taxation—quite apart from its important informative value.

(e) ADVERTISING—(including outlay on Catalogues and Lists)

In settling the computations, difficulty frequently arises in regard to this expenditure. Where the outlay is large, it is sometimes sought to spread the item forward over a period of two or three years on the ground that the full amount of the expenditure is not incidental to the trading of the period of outlay.

Costing records will enable full details of the expense to be produced, and will form the best possible basis for a discussion of its treatment in the tax computation.

(f) EXPERIMENTAL EXPENDITURE

An experimental "shop" or department has often to exist side by side with the normal manufacturing departments. Where a cost system makes it possible, all labour or material expended on such experimental work will be separately allocated under appropriately descriptive "job" headings. It has already been indicated that the information available from such records is of considerable value to the management—who will perhaps be surprised to learn what this non-productive section of the business has cost.

In addition, however, the question of experimental outlay frequently raises thorny points in a discussion of the figures for income tax. If the expenditure on experimental work is capitalized and included in the Balance Sheet as a somewhat intangible asset, no deduction from profits for income tax will arise in respect of it and, since it does not consist of machinery installed for the carrying on of the business, no wear and tear allowance will attach to it.

If, on the other hand, the management decides to "write off" the expenditure in the Trading and Profit and Loss Account, the item will at once create the need to convince the Inspector of Taxes of its "revenue" nature and of its outlay "exclusively for the purposes of the trade or business."

A careful sorting of the expenditure involved under the operation of a costing system will ensure in the first place that only items of material and labour cost definitely expended on experimental work have been so allocated, and, secondly, will provide the greatest possible amount of evidence for use in that discussion with the Inspector of Taxes which always follows the appearance of the word "experimental" in the periodical accounts.

(g) ALTERATIONS

Although every alteration must consist partly of capital or improvement value, the item is important enough to warrant separate consideration.

The Inland Revenue viewpoint on this matter is that every alteration properly defined must contain some amount of improvement or addition value, and that such portion falls thereby to be disallowed in computing profits for income tax assessment.

Frequently the term "alterations" is very loosely used in preparing accounts and in consequence settlement of figures for income tax proves long and difficult as it is necessary to produce sufficient convincing evidence before the Inspector of Taxes will agree that the so-called alterations were in fact replacements with no improvement value attaching. Often in practice some arbitrary division between revenue and capital has to be agreed as the only means of settling the point.

A costing system will enable the details of the expenditure to be presented in such a way that the facts will be apparent and a discussion quickly possible.

(h) PATTERNS

Where costing does not provide definite information, the treatment of patterns is often somewhat haphazard.

The total cost of patterns, whether made in the concern's own pattern shop and consisting of materials used and wages paid thereon, or purchased from outside suppliers, is debited to an account entitled "Patterns."

Since a mere accumulation of the periodical cost of patterns as a Balance Sheet total is unthinkable in the minds of a prudent management, some attempt is made at a periodical valuation of patterns, resulting in a write off to Trading and Profit and Loss Account of some portion of the outlay. Here, then, is another item which will give rise to considerable difficulty before its income tax treatment is settled.

The book-keeping treatment outlined above rarely takes notice of the fact that in any average case, patterns made or purchased by a manufacturer will divide themselves into three main classes—

(1) Patterns made or purchased in connexion with a customer's special order and charged to him in the job price.

(2) New or additional patterns made or purchased for use in the normal range of manufacturing.

(3) Patterns made or purchased to replace worn out or broken patterns of the same type.

The operation of a costing system will resolve many of the difficulties.

Patterns for which a customer is to pay (in the price of the goods) will be automatically placed to the "Job" account covering the order in question and will not appear under the costed heading of Patterns at all. Patterns for replacement purposes will be so designated and the periodical total of such outlay can be charged as such in the Trading and Profit and Loss Account, falling for automatic allowance for income tax purposes. The cost of new or additional patterns will be collected in the appropriate Cost Ledger Account which will therefore contain only that portion of outlay on patterns which is of a capital nature. The resulting Balance Sheet showing will be much more nearly correct than that obtained by any method of arbitrary division of total expenditure.

If separate patterns are numbered or in some way can be identified, a periodical overhaul of the actual patterns will enable those which have become obsolete or are otherwise useless to be accurately listed and an examination of the cost records, providing details of the individual costs of the patterns concerned, will facilitate the writing off as a separate item of the total involved. This charge, being a capital loss, will, of course, be disallowed for income tax.

(i) REMOVAL EXPENSES

In the event of a change of premises which usually involves the transference of plant, stock, tools and other assets, it is provided by the income tax rules that the cost of removal of stock-in-trade is an allowable expense, *if the removal is forced* by the compulsory acquirement of the original premises or other similar cause. It is vitally necessary that the most precise details of all expenditure in connexion with a removal should be available. With a costing system existing, the sifting of the items of expense and their correct allocation will ensure that the full allowable cost of removing stock is collected together, and that no items of ordinary expense, e.g. normal repairs, will be allowed to remain in the disallowable total of general removal expenses.

(j) AFTER-FIRE EXPENDITURE

The expenditure consequent upon a fire in manufacturing premises will cover a wide field. There will be expenditure for the purpose of replacing assets as arranged with the Insurance

Company, as well as the normal and abnormal expenses of running the business during the restoration period. It may be that increased working expenses and loss of profits are covered by an Insurance Policy in addition to the ordinary fire cover. The correct allocation of all expenditure during the period following the fire is of particular importance, both in regard to the settlement with the Insurance Company and from the angle of income tax liability, and a costing system will enable accurate details to be produced as may be necessary.

The normal treatment for income tax purposes of the premiums paid under a Loss of Profits Policy is for the premium to be disallowed on the ground that it is not an expense *necessarily* incurred for the purposes of the trade or business.

The proceeds of a claim following a fire will correspondingly fall to be excluded from assessment. The taxpayer may elect, however, to claim the premiums as an allowable expense, on giving an undertaking to bring into account for assessment the proceeds of any claim under the policy.

If the normal course is pursued, there will be excluded from profits for income tax assessment the amount recovered under the Loss of Profits Policy (which will have been credited to Profit and Loss Account), less the expenses arising because of the fire, i.e. the additional working expenses consequent upon the fire (which will have been debited to the Profit and Loss Account).

If all items of expense in the period following the fire are correctly allocated to capital outlay, increased working expenses, etc., at the time of expenditure, the settlement of the figures both for insurance and income tax purposes will become easier.

---

1. For what general reasons should the existence of a costing system facilitate the agreement of figures of "Profit" for assessment to Income Tax?

2. How would the cost records be used to support the charging of expenditure on Plant Repair as a trading expense in the financial accounts?

3. How will a costing system deal with expenditure on Patterns?

CHAPTER XVIII

THE AUDITOR AND COSTING

At first sight it may be said that an auditor is little concerned with the existence or non-existence of a costing system.

It would seem at any rate that there is no provision expressed or implied in, for example, the Companies Act which imposes upon the auditor of a limited company a duty to take cognizance of any costed figures which may exist.

However, the matter deserves and requires rather more detailed consideration. An auditor's general duty is to see that the Balance Sheet presented does give a "true and correct view of the state of affairs" and there is an implied responsibility on him to see also that the Profit and Loss Account which accompanies the Balance Sheet does not contain misstatements or misrepresentations of facts.

It rather seems, therefore, that for an auditor to be in a position to carry out his duties efficiently, he must take advantage of any means which may exist of satisfying himself as to the accuracy of the figures contained in the accounts. This being so, if a costs system is being operated, it is suggested that the auditor should make some use of the information contained therein as a check upon, for example, the allocation of expenditure between capital and revenue in the financial books or upon the values placed upon important items of stock or work in progress.

The showing of productive and unproductive wages in the accounts is equally important and if cost records give the details necessary for a strict allocation of these items, it is submitted that the auditor should make use of the available information.

The auditor's check on values placed upon stock and work in progress will most definitely be affected by any costing records which may be in existence. He must verify the value placed upon these items by any means in his power and, therefore, detailed costed information as to stock purchasings or as to labour and material expended on work in progress should be examined by him as a preliminary to confirming the accounts.

Apart from this, the auditor is nowadays more than ever expected to give useful advice on current matters, and it is suggested that an examination of what costing information is available may enable him to point some useful lessons or make some valuable suggestions.

To whatever extent an auditor feels he should consult the cost records, he should make certain of ascertaining the facts on which his opinions are to be based. He should go back to prime entries. He should, for example, demand the original cupola details of metal melted if he is called upon to check the value placed upon pig iron in stock in a foundry and should, of course, examine the detailed costs arising therefrom.

In addition to the presentation of a certified Balance Sheet, those responsible for the control of a business now expect from the auditor criticisms or suggestions.

Some analysis of the figures of current trading and perhaps a comparison with figures of previous periods will usually appear necessary. If no system of costing exists, the value of such data will be definitely limited. It follows, therefore, that if a cost system does exist, sufficient use should be made of it by the auditor to enable his deductions to be as definite as possible and at least to avoid misleading conclusions.

In many cases where a more or less complete costing system does exist, sufficient use of its information is not made, and here perhaps is another sphere of helpful activity by the auditor. It must be realized that any effective costing system will make it possible to ascertain quite easily the following, among other items of information—

(1) The respective totals of true productive and true unproductive wages.

(2) The composition of unproductives.

(3) The total of selling costs, with details of component items of expenditure.

Here indeed is matter for the serious and frequent consideration of the Proprietor, Partner, or Director, but too frequently the summarized figures remain unattended in their respective accounts in the Cost Ledger. The auditor can do much to encourage a different attitude and, by pointing out the value of the figures displayed, can give really practical assistance to the business.

Too rarely does a costing system link up with the financial books, and on this matter also the auditor can express a valuable opinion. It is obvious that considerable advantage will attach to the keeping of costing records in such a way that they form a real part of the book-keeping with the financial books and the Cost Accounts so interlocked that both display their details more accurately and more usefully.

The auditor is often the person best qualified to advise on this matter and to see it carried out in an efficient manner.

The above points are intended merely to support the suggestion that the existence or non-existence of a costing system must affect the scope of the auditor to a greater or less extent.

There is probably no strict justification for going beyond this suggestion, but the trend of affairs in these ever-changing and rapidly moving times lends colour to the idea that the time will come when not only must "proper books" be kept by every business, but, moreover, properly kept records of periodical detailed costs will be regarded as essentials rather than as luxuries. Such a change is not hard to visualize, and with it must come inevitably an enlargement of the scope of the audit to enable it to cover as an integral part a sufficient examination of the plan of the costing system, of its detailed workings, and of the results produced by it.

COST AUDIT

A programme of a cost audit in such circumstances as are suggested above should embrace the following points—

MATERIALS

(1) A test check of material specifications with the relevant Works Order.

(2) A comparison of the material specifications

with the "material" charged on the Cost Summary relating to the particular job.

(3) A comprehensive test check of the detailed Requisitions with the Works Order.

The Requisitions should themselves be examined to see that—

(*a*) The "Works Order or Job" number is correctly stated.

(*b*) The Requisition is dated.

(*c*) The necessary authorizing signature is attached.

(4) A comprehensive test check of the Requisitions to the Stores Ledger.

(5) A general examination of Stores Ledger details—totals, balances, general descriptions, minima and maxima, etc.

(6) An examination of any existing records of waste or scrapped materials.

LABOUR

(1) A comparison of Time Cards or Sheets with original clock cards.

(2) A comprehensive checking of Time Cards and Piecework records to the Job Labour abstract.

(3) A checking of the Labour Abstract figures to the relative Cost Summaries.

(4) A careful examination of labour allocated to unproductive or general maintenance headings (or to Permanent Order numbers if this method of classification is in operation).

This examination should form the basis for a special report by the auditor on any points which emerge. In particular the details of "idle time" recorded should be closely watched.

Where the costing system has been made part of the double-entry, the details of material and labour control accounts must be completely checked, as also must the reconciliation with the figures of purchases and wages shown by the financial books.

Where there is no link up with the financial books, the auditor will check the details of any memorandum Control or Total Accounts and, if none exist, should prepare the necessary summaries in order that he may be able to report on the matter.

ONCOST

(1) The auditor will first of all examine the figures of the accounts prepared from the financial books and will ascertain which items have been regarded as "profit appropriation" and not as items of recoverable overhead (e.g. interest on borrowed capital).

(2) The composition of oncost totals will be checked from the "Job" or "Works Order" summaries. If no such oncost abstract has been prepared, the auditor should abstract and summarize from the individual job records the value of oncost recovered thereon.

(3) A comparison of total oncost recoveries with the oncost control accounts should be made, if double-entry is applying. Otherwise, a memorandum account for the same purpose should be prepared.

(4) The auditor will examine the resulting figures

and will report clearly on the extent to which oncost has been recovered and the probable reasons (e.g. fall in turnover) which have contributed to the non-recovery and will make any suggestions for the future.

On this matter of oncost, the auditor must do his best to ensure by clearly worded reports that the management understands the position and has available accurate figures to form a basis for oncost budgeting for the following period.

GENERAL

Following his examination of details of the costing system and the results available, *he will make any suggestions* for the improvement of the system. As an instance he may be able usefully to suggest that complete figures of selling costs (total or departmentalized) should be computed, in which case the inclusion of these items as a separate oncost heading may give a desired result.

1. In what matters can access to the costing records be an aid to the auditor of a manufacturing concern?

2. What is the auditor's duty in regard to the values placed upon stocks of—

Raw material,
Partly manufactured goods,
Finished goods?

3. Instance some of the relevant points which would be included in an audit programme framed to embrace the costing records?

CHAPTER XIX

MECHANICAL AIDS TO COSTING

THE development of costing as an established factor in operating important business has brought with it considerable development in machines of various types—single and multi-purpose—which, to their different capacities, ease the burden of the routine labour which the recording of details involves and help to speed up the whole process of cost recording.

It may be justifiably stated that the development of modern office machines has made practicable the maintenance of detailed up-to-date cost records in many cases where this would not be possible by hand. This is perhaps the most important function of office machines—to provide comprehensive, accurate, and positively controlled figures from day to day.

It will be realized that any scheme of cost accounting by machines requires the same basis of sound planning and reasonable provision as would be required for hand operation; the basic plan for apportionment of overhead charges and the method of applying them must be settled as a definite principle. This and other factors must be determined by the accountant before the system commences to take care of the details.

When this has been done the large volume of relatively simple repetitive transactions can be dealt with by a machine process whereby the

---

The illustrations used in this chapter are reproduced by courtesy of Messrs. Felt & Tarrant, Ltd., Powers-Samas Accounting Machines, Ltd., Underwood Elliott Fisher, Ltd., and Brandt Automatic Cashier Co. Ltd.

recording can be completed rapidly and at a low cost, with maximum accounting control.

In many cases exceedingly simple and comparatively inexpensive machines will carry out this work, and the employment of intricate and expensive equipment is not a primary condition of machine accounting.

The basic plan having been determined, the vital requirement is to establish direct but rigidly controlled routines whereby all the elements of cost (dissected as may be considered necessary) are passed through to the Cost Summaries or Accounts in strict order. Standardized Time Cards, Stores Requisitions, or other documents to record the history of labour or materials must be used consistently.

Machines exist which can carry through this recording of details and can provide automatic proof of the work that has been done.

The principles of cost accounting by mechanical means are not in the least degree different from those which apply when machines are not used, but the practical application of sound cost accounting may be greatly broadened by the use of modern office equipment with the advantages of—

(1) Speed in working and production of results.

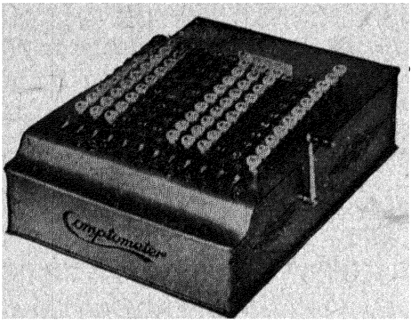
(2) Accuracy ensured by prompt mechanical proof.

(3) Saving in hand labour costs.

It is proposed to illustrate some of the commonly used machines and to instance the particular scope of each.

The Comptometer Machine operated on the

typewriter principle is a very useful member of a mechanical staff.

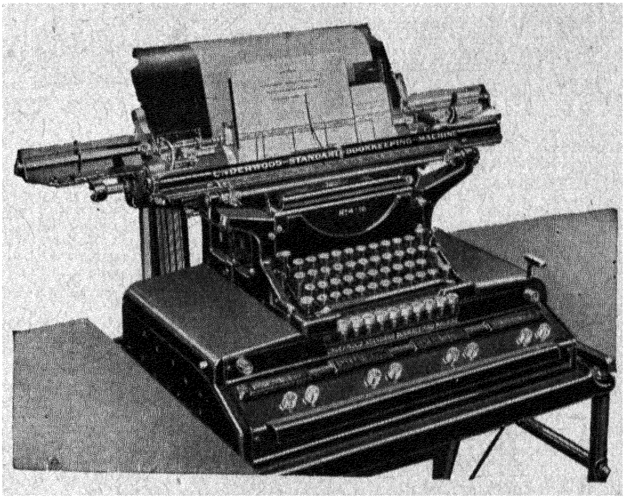


This machine provides a ready medium for making and checking totals and other calculations

Of multi-purpose Recording and Calculating Machines there are many. These are frequently used to make more efficient the general book-keeping of the business, for the recording of sales and purchase details, cash received and paid items, and for the posting of detailed Ledger Accounts. By the continuous operation of "control" or Summary Cards, accumulating totals and balances are recorded automatically and the preparation of interim accounts is facilitated in addition to the advantages of speedy preparation of monthly Ledger statements, an arithmetic check on which is automatically provided.

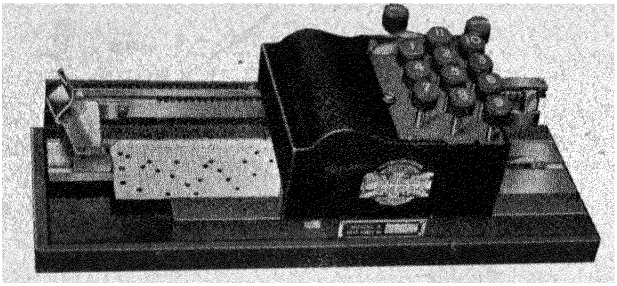
The machine illustrated above provides facilities for listing the figures as the calculations are being made

This type of machine can be of real use in the keeping of costing records. The recording of the dissection of material requisitions, of labour details from Time or Piecework Records, and of expense allocations are all within the scope of the machine, which can also be employed in the keeping of the control accounts for material, labour, and oncost necessary if a link-up (memorandum or double-entry) with the financial books is to be preserved.

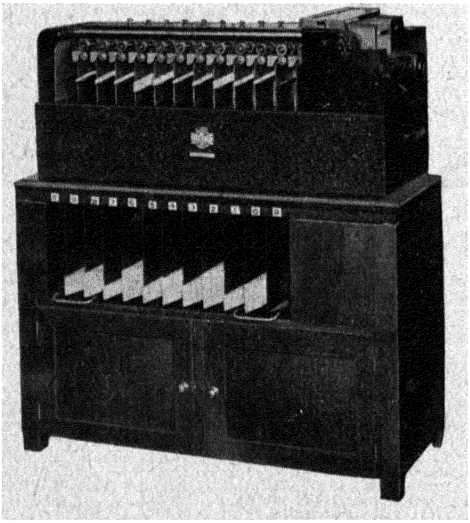


The dissection of constantly recurring details is sometimes left to the care of a machine designed to "sort" like items automatically into their respective allocations. Such a machine is illustrated on the following page.

The original entry is made, not by a positive writing or typing of a figure on a card, but by the punching out of a hole in the position on the card which corresponds to the figure required. The punched cards are then passed through the automatic sorting machine which "sorts" cards with similar perforations. By translating the punched holes back into terms of figures of number or value,



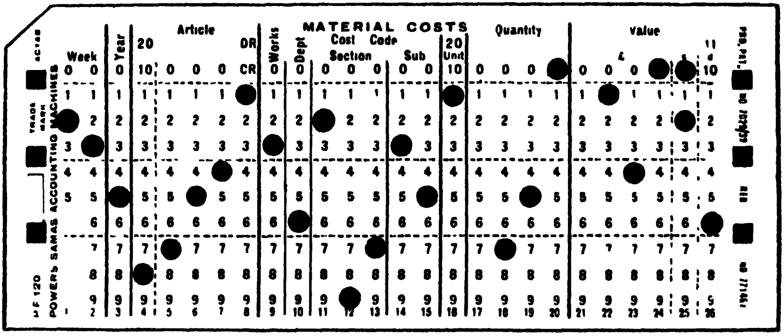
A machine which by depression of the key perforates the card in the appropriate position



The machine which automatically sorts the punched cards

the sorted cards can be listed and, if necessary totals obtained.

The following is an illustration of a "card" used in this connexion—



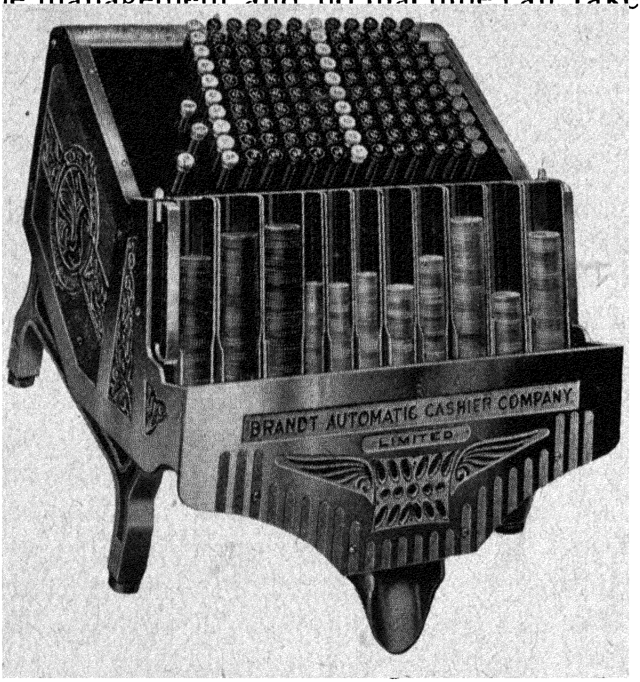
The cards, which are of standard size, can be made to record what information is required. Job costs, machine hours expended and departmental production figures are instances of records which can be made speedily and automatically in the manner explained.

In particular regard to direct and indirect labour and materials cards are punched for each item of material consumed and for every hour spent on the work. Direct and indirect labour distribution summaries can then be prepared from the cards, as can material summaries and details for Stores Accounts.

The work involved in the payment of wages can be simplified and speeded up by the use of the machine illustrated on the next page. It deals only with coin, but if the machine is fed with the correct amount of silver and copper, the sums required for each wages packet will be ejected by depressing a single key.

The fact that the machine is empty on the completion of the wage pay will enable the accuracy of the process to be proved!

Perhaps enough has been written to indicate the value of machine accounting in the Cost Office, where the routine detail is sufficient in volume to justify the use of the machines. As was previously pointed out, the planning of the system is a matter for the management and no machine can take the place of the directing brain, but with a planned system, the mechanical aids can take care of the details and pass them through the processes laid down to produce the details and summaries required at the end.



---

1. The introduction of machines for accounting sometimes involves considerable capital outlay. What points should be considered with a view to deciding whether such outlay is justifiable or not?
2. What results should follow the introduction of machines to record costing details?
3. What steps should be taken to ensure that the desired results will be obtained?

CHAPTER XX

THE INCORPORATION OF COST FIGURES IN THE DOUBLE ENTRY SYSTEM

It has been emphasized that the inclusion of the cost figures as part of the double-entry system has much to commend it.

It is further emphasized that this merging of the details obtained from the financial books and costing records should be so complete and automatic that the figures necessary for the compilation of final accounts shall thereafter be produced in their most correct and valuable form by the normal operation of the book-keeping system.

The example given in this chapter will serve to show how the merging process may be carried out and how effectively, in result, the cost figures take their place in the scheme of record and themselves provide the best material for the presentation of the Manufacturing or Trading and Profit and Loss Accounts.

The details are so arranged and set out that, step by step, the transactions can be traced through the books to the final stage of account at the end of a six months' trading period.

Having regard to the great advantages which must result from the full absorption of the Costing details in the Double Entry scheme, the student is advised to make a complete check of the entries shown.

The method outlined can be applied in every case, the process being limited only by the completeness or otherwise of the Cost system in operation.

BALANCE SHEET OF FERROUS AND NON-FERROUS MANUFACTURERS, AT 1ST JULY, 1935

		£
Sundry Creditors		
On Trade Accounts	£2,796	
Wages Accrued due	79	
Salaries Accrued due	14	
Owing for Advertising	23	
Owing for Lorry Repairs	12	
Owing for Audit Fees	30	
		2,954
Capital Accounts		
Ferrous	£6,000	
Non-Ferrous	4,500	
		10,500
Current Accounts		
Ferrous:		
Balance 1st Jan., 1935	£417	
Add 4/7ths net Profit to 30th June, 1935	688	
	1,105	
Less Drawings	300	
		805
Non-Ferrous.		
Balance, 1st Jan., 1935	£271	
Add 3/7ths net Profit to 30th June, 1935	516	
	787	
Less Drawings	300	
		487
		£14,746

			£
Freehold Property at cost			4,600
Plant and Machinery at cost, *less* Depreciation			3,543
Pattern Equipment as Valued by the Partners			896
Works Fixtures at cost, *less* Depreciation			237
Motor Vehicles, viz.—			
Lorry at cost, *less* Depn.		£232	
Van " "		146	
Car " "		95	
			473
Office Furniture at cost, *less* Depreciation			72
Stock of Raw Material		£679	
Stock of Finished and Partly-finished Goods		991	
			1,670
Sundry Debtors, viz.—			
Trade Debts		£3,159	
Insurances paid in advance		38	
Rates paid in advance		29	
		3,226	
Less Reserves for Bad and Doubtful Debts	£236		
Discounts allowable	84		
		320	
			2,906
Cash at Bank		£342	
Cash in Hand		7	
			349
			£14,746

The above Balance Sheet is given in detailed form in order that the following Trial Balance as at 1st July, 1935, may be shown and used as the basis for a re-opening of the financial books.

TRIAL BALANCE, 1ST JULY, 1935

A/c No.		*Dr.* £	*Cr.* £
7	Freehold Property	4,600	
8	Plant and Machinery	3,543	
9	Patterns	896	
10	Works Fixtures	237	
6	Bought Ledger Balances		2,796
15	Wages Reserve		79
16	Salaries Reserve		14
17	Advertising Reserve		23
18	Lorry Repairs		12
19	Professional Charges		30
11	Lorry	232	
12	Van	146	
13	Car	95	
14	Office Furniture	72	
1	Ferrous—Capital		6,000
2	Non-Ferrous—Capital		4,500
3	Ferrous—Current Account		805
4	Non-Ferrous—Current Account		487
20	Material Stocks	679	
20	Finished and Partly-finished Goods	991	
5	Sales Ledger Balances	3,159	
21	Insurances paid in advance	38	
22	Rates Reserve	29	
23	Bad Debts Reserve		236
24	Discounts Reserve		84
	Cash Book { Bank	342	
	Cash Book { Cash in hand	7	
		£15,066	£15,066

These balances will be identified as the opening items in the various accounts shown (pages 283 to 290).

The following are assumed to be the transactions for the six months to 31st December, 1935 (in summarized form for convenience).

References			£
A/c 5—A/c 26	Sales for the period		12,368
Cash Book—A/c 5	Cash Received from Debtors		11,480
Cash Book	Cash paid to Bank		11,472
Cash Book—A/c 6	Trade Creditors paid by cheque		6,438
Cash Book—A/c 25	Cheques drawn for Petty Cash		320
A/c 25 and	*Petty Cash Expenses Summary—*		
A/c 31	Postages	£28	
A/c 32	Carriage	47	
A/c 33	National Insurance	101	
A/c 34	Wrapping and Packing	67	
A/c 18	Petrol and Oil	69	
A/c 6 and	*Purchase Day Book Summary—*		
A/c 27	Materials Purchased	£5,382	
A/c 22	Rates	60	
A/c 28	Telephone	18	
A/c 21	Insurances	65	
A/c 8	Plant—Additions	185	
A/c 29	Repairs	146	
A/c 17	Advertising and Stationery	210	
A/c 9	Patterns Purchased	42	
A/c 30	Manufacturing Sundries	179	
A/c 18	Motor Expenses	93	
			6,380
Cash Book—A/cs 3 and 4	Drawings (by cheque)		600
Cash Book—A/c 16	Salaries (by cheque)		370
Cash Book—A/c 15	Wages (by cheque)		3,568
A/c 5—A/c 23	Bad Debts written off		182
A/c 5—A/c 24	Discounts allowed to Debtors		234
A/c 6—A/c 24	Discounts allowed by Creditors		96
A/c 5	Sales Ledger Balances, 31/12/35		3,631
A/c 6	Bought Ledger Balances, 31/12/35		2,642

These transactions will be found in their appropriate places in the various parts of the Ledger—according to the references noted against each.

It is further assumed that a costing system has been installed, and has recorded the operations of the period, 1st July to 31st December, 1935, as follows—

WAGES SUMMARY

	£
Productive Works Orders	2,696
Standing Orders—	
No. 1 (General Odd Labour)	19
2 (Supervision)	396
3 (Plant Additions)	32
4 (Plant Maintenance)	41
5 (Pattern Additions)	—
6 (Pattern Maintenance)	12
7 (Building Additions)	—
8 (Building Maintenance)	25
9 (Idle Time recorded)	8
10 (Additions to Works Fixtures)	10
11 (Repairs to Works Fixtures)	—
12 (Repairs to Office Equipment)	—
13 (Stores)	136
14 (Motor Vehicle Repairs)	22
15 (Driving Lorry)	54
16 (Driving Works Van)	50
17 (Driving Staff Car)	50
18 (Advertising)	—
	£3,551

(Obtained by summarizing weekly the details given on Time Sheets.)

MATERIAL SUMMARY

	£
Productive Works Orders	5,014
Standing Orders—	
No. 1 ——	—
2 ——	—
3 (Plant Additions)	—
4 (Plant Maintenance)	10
5 (Pattern Additions)	—
6 (Pattern Maintenance)	3
7 (Building Additions)	—
8 (Building Maintenance)	—
9 ——	—
Carried forward	£5,027

	£
Brought forward	5,027
No. 10 (Additions to Works Fixtures)	—
11 (Repairs to Works Fixtures)	—
12 (Repairs to Office Equipment)	—
13 ——	—
14 (Motor Vehicle Repairs)	—
15 ——	—
16 ——	—
17 ——	—
18 (Advertising)	15
	£5,042

(Obtained by summarizing the details given on Material Requisitions.)

The above details of Material and Labour have been incorporated in a Cost Ledger (Accounts 35 to 59), the totals being credited to Labour and Material controls respectively.

When the postings have been made, Trial Balances can be extracted as follows at 31st December, 1935.

FINANCIAL BOOKS

A/c No.		Dr. £	Cr. £
	Cash Book: Cash in Hand	15	
	Cash Book: Cash at Bank	518	
1	Ferrous Capital		6,000
2	Non-Ferrous Capital		4,500
3	Ferrous Current Account		505
4	Non-Ferrous Current Account		187
5	Sundry Debtors	3,631	
6	Sundry Creditors		2,642
7	Freehold Property	4,600	
8	Plant and Machinery	3,728	
9	Patterns	938	
10	Works Fixtures	237	
	Carried forward	£13,667	£13,834

A/c No.		£	£
	Brought forward	13,667	13,834
11	Motor Lorry	232	
12	Works Van	146	
13	Car	95	
14	Office Furniture	72	
15	Wages	3,489	
16	Salaries	356	
17	Advertising and Stationery	187	
18	Motor Expenses	150	
19	Professional Charges		30
20	Trading Stocks	1,670	
21	Insurances	103	
22	Rates	89	
23	Bad Debts		54
24	Discounts	54	
25	Petty Cash	8	
26	Sales		12,368
27	Purchases	5,382	
28	Telephone	18	
29	Plant Repairs	146	
30	Manufacturing Sundries	179	
31	Postages	28	
32	Carriage	47	
33	National Insurance	101	
34	Wrapping and Packing	67	
		£26,286	£26,286

Cost Ledger

A/c No.		£	£
35	Labour Control Account		3,551
36	Materials Control Account		5,042
37	Direct Labour	2,696	
38	Direct Material	5,014	
39	Standing Order No. 1	19	
40	,, ,, ,, 2	396	
41	,, ,, ,, 3	32	
42	,, ,, ,, 4	51	
44	,, ,, ,, 6	15	
46	,, ,, ,, 8	25	
47	,, ,, ,, 9	8	
48	,, ,, ,, 10	10	
51	,, ,, ,, 13	136	
	Carried forward	£8,402	£8,593

A/c No.		£	£
	Brought forward	8,402	8,593
52	Standing Order No. 14 . . .	22	
53	,, ,, ,, 15 . . .	54	
54	,, ,, ,, 16 . . .	50	
55	,, ,, ,, 17 . . .	50	
56	,, ,, ,, 18 . . .	15	
		£8,593	£8,593

The incorporation of the Cost Ledger with the financial accounts can now be effected by the operation of the following Journal entries, which should be traced through the accounts concerned.

1935		A/c No.	£	£
Dec. 31	Material Control Account . . *Dr.*	36	6,741	
	To Trading Stocks . . .	20		1,359
	Raw Material . . £679			
	Material in Finished and Partly-finished Stock 680			
	,, Purchases	27		5,382
	Being transfer of material stock at 1st July, 1935, and of Purchases for the period.			
	Labour Control Account . . *Dr.*	35	3,879	
	To Trading Stocks . . .	20		311
	(Labour on Finished and Partly-finished Stock.)			
	,, Wages	15		3,568
	Wages . . . . . . *Dr.*	15	79	
	To Labour Control Account . .	35		79
	Transfer of Reserve at 1st July, 1935.			
	Plant and Machinery . . *Dr.*	8	32	
	To Standing Order No. 3 Account	41		32
	Transfer of Labour on Plant Additions.			
	Works Fixtures . . . *Dr.*	10	10	
	To Standing Order No. 10 Account	48		10
	Transfer of Labour on additional Works Fixtures.			
	Oncost Summary Account. . *Dr.*	57	2,366	
	To Salaries	16		356

		A/c No.	£	£
1935	Oncost Summary Account (*contd.*) *Dr.*			
	To Advertising and Stationery	17		187
	Motor Expenses	18		150
	Insurance	21		103
	Rates	22		89
	Discounts	24		54
	Telephone	28		18
	Plant Repairs	29		146
	Manufacturing Sundries	30		179
	Postages	31		28
	Carriage	32		47
	National Insurance	33		101
	Wrapping and Packing	34		67
	Supervision	40		396
	General Odd Labour	39		19
	Plant Maintenance	42		51
	Pattern Maintenance	44		15
	Building Maintenance	46		25
	Idle Time Recorded	47		8
	Stores	51		136
	Motor Repairs	52		22
	Lorry Driving	53		54
	Works Van Driving	54		50
	Staff Car Driving	55		50
	Advertising	56		15
	Transfer of expenses.			
	Professional Charges *Dr.*	19	30	
	Bad Debt Account *Dr.*	23	54	
	To Oncost Summary Account	57		84
	Transfer of credit balances on Expense Accounts.			

Reserves and Adjustments necessary at 31st December, 1935, are assumed as follows—

A Bad Debt Reserve of £120 to be created.

Depreciation to be written off—

	£
Plant and Machinery	265
Works Fixtures	24
Motor Lorry	52
Works Van	46
Staff Car	25
Office Furniture	8
Patterns to be revalued at	900
Wages accrued due	48
Salaries accrued due	21
Professional Charges owing	48

(*Continued on page* 278.)

		£	
Insurances unexpired		10	
Rates paid in advance		15	
A Reserve of £60 to be provided to cover Discounts to be allowed to Debtors.			
Telephone Account owing		4	
Stocks at 31st December, 1935—			Obtained by Physical Stocktaking and compared with the balances of the Stock Ledger and Works Order Cards (in progress).
Raw Materials		760	
Finished and Partly-finished Stocks—			
Material	£812		
Labour	240		
		1,052	

The following entries will serve to incorporate the above provisions—

1935		A/c No.	£	£
Dec. 31	Oncost Summary Account. . Dr.	57	253	
	To Bad Debt Account	23		120
	Salaries	16		21
	Professional Charges	19		48
	Discounts	24		60
	Telephone	28		4
	Insurance . Dr.	21	10	
	Rates . Dr.	22	15	
	To Oncost Summary Account	57		25
	Oncost Summary Account. . Dr.	57	458	
	To Plant and Machinery	8		265
	Works Fixtures	10		24
	Motor Lorry	11		52
	Works Van	12		46
	Staff Car	13		25
	Office Furniture	14		8
	Patterns	9		38
	Labour Control Account	35	48	
	To Wages	15		48
	Trading Stocks . Dr.	20	1,812	
	Raw Materials . £760			
	Finished and Partly-finished Stocks			
	Material . 812			
	Labour . 240			
	To Material Control Account	36		1,572
	,, Labour Control Account			240

After these entries have been passed through the Accounts, it will be found that balances still exist on Material Control Account and Labour Control Account. These represent losses of material purchased and wages expended due to wastage, faulty recording or other similar cause.

These items should be dealt with as follows—

1935		A/c No.	£	£
Dec. 31	Labour not accounted for . . .	58	57	
	To Labour Control Account . .	35		57
	Material not accounted for . .	59	127	
	To Material Control Account .	36		127

At this stage, a Trial Balance extracted from the financial books *and* the Cost Ledger will give the following—

A/c No.		*Dr.* £	*Cr.* £
	Cash Book: Cash in Hand . .	15	
	Cash Book: Cash in Bank . .	518	
1	Ferrous Capital		6,000
2	Non-Ferrous Capital . . .		4,500
3	Ferrous Current Account . .		505
4	Non-Ferrous Current Account .		187
5	Sales Ledger Balances . . .	3,631	
6	Bought Ledger Balances . .		2,642
7	Freehold Property	4,600	
8	Plant and Machinery . . .	3,495	
9	Patterns	900	
10	Works Fixtures	223	
11	Motor Lorry	180	
12	Works Van	100	
13	Staff Car	70	
14	Office Furniture	64	
15	Wages Reserve		48
16	Salaries Reserve		21
	Carried forward	£13,796	£13,903

A/c No.		£	£
	Brought forward	13,796	13,903
19	Professional Charges . . .		48
20	Trading Stock	1,812	
22	Rates Reserve	15	
21	Insurance Reserve . . .	10	
23	Bad Debts Reserve . . .		120
24	Discounts Reserve . . .		60
25	Petty Cash	8	
26	Sales		12,368
28	Telephone Reserve . . .		4
37	Direct Labour	2,696	
38	Direct Material	5,014	
57	Oncost Summary	2,968	
58	Labour not accounted for . .	57	
59	Material not accounted for . .	127	
		£26,503	£26,503

and final accounts may be prepared in the following form, the transfers to the Trading and Profit and Loss Accounts being shown in the Direct Labour, Direct Material and Oncost Summary Accounts, with labour and material not accounted for dealt with separately in the Profit and Loss Account.

FERROUS AND NON-FERROUS
TRADING AND PROFIT AND LOSS ACCOUNT FOR THE SIX MONTHS ENDED 31ST DECEMBER, 1935

Dr. *Cr.*

		£		£
To Direct Material consumed .		5,014	By Sales for the Period . .	12,368
„ Direct Labour expended .		2,696		
„ Costed Gross Profit (carried to Profit and Loss Account) .		4,658		
		£12,368		£12,368
		£		£
To Material not accounted for	£127		„ Costed Gross Profit brought down	4,658
„ Labour not accounted for	57			
		184		
„ *Expenses per Oncost Summary*				
Manufacturing Sundries .		179		
Idle Time Recorded . .		8		
Carried forward		£371	Carried forward	£4,658

TRADING AND PROFIT AND LOSS ACCOUNT—*contd.*

Dr.		£	*Cr.*	£
Brought forward		371	Brought forward	4,658
To *Supervision and Unproductive Labour*				
Salaries . . .	£377			
General Supervision .	396			
Stores . . .	136			
General Odd Labour .	19			
Lorry Driving . .	54			
Works Van Driving .	50			
Staff Car Driving .	50			
		1,082		
,, *Repair Costs*				
Plant Maintenance .	£197			
Building Repairs .	25			
Pattern Maintenance .	53			
		275		
,, *Selling and Distribution*				
Advertising and Stationery . . .	£202			
Motor Running Expenses . . .	172			
Discounts (net) . .	114			
Postages . . .	28			
Carriage . . .	47			
Wrapping and Packing	67			
Bad Debts . .	66			
		696		
,, *General and Establishment*				
Insurances . . .	£93			
Rates . . .	74			
Telephone . .	22			
National Insurance .	101			
Professional Charges .	18			
		308		
,, *Depreciation*				
Plant and Machinery .	£265			
Works Fixtures .	24			
Motor Lorry . .	52			
Works Van . .	46			
Staff Car . . .	25			
Office Furniture	8			
		420		
		£3,152		
,, Balance to Appropriation Account . .		1,506		
		£4,658		£4,65

APPROPRIATION ACCOUNT

Dr.		£	*Cr.*	£
To Division of Net Profit—			By Balance from Profit and Loss Account	1,506
Ferrous, 4/7ths .	£861		(Net Profit for the Period.)	
Non-Ferrous, 3/7ths .	645			
		1,506		
		£1,506		£1,506

FERROUS AND NON-FERROUS
BALANCE SHEET AS ON 31ST DECEMBER, 1935

		£				£
Sundry Creditors			Freehold Property at Cost			4,600
On Trade Accounts	£2,642		Plant and Machinery at Cost, *less* Depreciation			3,495
Wages Accrued due	48		Pattern Equipment as valued			900
Salaries Accrued due	21		Works Fixtures at Cost, *less* Depreciation			223
Professional Charges Outstanding	48		Motor Vehicles, viz.—			
Telephone Charges Outstanding	4	2,763	Lorry at Cost, *less* Depn.		£180	
Capital Accounts			Van ,, ,,		100	
Ferrous	£6,000		Car ,, ,,		70	350
Non-Ferrous	4,500	10,500	Office Furniture at cost, *less* Depreciation			64
Current Accounts			*Trading Stocks*			
Ferrous:			Raw Material		£760	
Balance, 1st July, 1935	£805		Finished and Partly-finished Goods		1,052	1,812
Add 4/7ths net Profit to 31st Dec., 1935	861		*Sundry Debtors, viz.*			
	£1,666		Trade Debts		£3,631	
Less Drawings	300	1,366	Rates paid in advance		15	
Non-Ferrous:			Insurances in advance		10	
Balance, 1st July, 1935	487				£3,656	
Add 3/7ths net Profit to 31st Dec., 1935	645		*Less* Reserves for—			
	£1,132		Bad and Doubtful Debts	£120		
Less Drawings	300	832	Discounts Allowable	60	180	3,476
			Cash at Bank		518	
			Cash in Hand		23	541
		£15,461				£15,461

It will be realized that, for convenience, the whole of the expenses other than direct productive costs have been gathered under one heading of "Oncost" and so treated, with convenient allocations, in the Profit and Loss Account.

If necessary, a separate Works Oncost Summary Account could have been compiled, in which certain of the items applicable to the operation of the factory could appear. In the same way, effect could be given to any other required division of the expenses.

As previously indicated, if cost records exist which are sufficiently complete to make possible the preparation of "Oncost Recovered" Summaries, the sales total can be divided into its component parts, the "oncost recovery" included in sales being then compared with the total cost of indirect expenses as shown by the Profit and Loss Account.

PRIVATE LEDGER

FERROUS CAPITAL (*Account No.* 1)

Dr. *Cr.*

				1935			£
				July 1	By Balance per Trial Balance		6,000

NON-FERROUS CAPITAL (*Account No.* 2)

Dr. *Cr.*

				1935			£
				July 1	By Balance per Trial Balance		4,500

FERROUS CURRENT ACCOUNT (*Account No.* 3)

Dr. *Cr.*

1935			£	1935			£
Dec. 31	To Drawings per Cash Book .	C.B.	300	July 1	By Balance per Trial Balance	T.B.	805
	„ Balance c/d		1,366	Dec. 31	„ Share of Profit per Profit and Loss Account	P. & L.	861
			£1,666				£1,666
				1936			
				Jan. 1	By Balance b/d .		£1,366

NON-FERROUS CURRENT ACCOUNT (*Account No.* 4)

Dr. *Cr.*

1935			£	1935			£
Dec. 31	To Drawings per Cash Book .	C.B.	300	July 1	By Balance per Trial Balance	T.B.	487
	„ Balance c/d .		832	Dec. 31	, Share of Profit per Profit and Loss Account	P. & L.	645
			£1,132				£1,132
				1936			
				Jan. 1	By Balance b/d .		£832

CASH BOOK

Dr. *Cr.*

			Dis-count	Cash	Bank				Dis-count	Cash	Bank
			£	£	£				£	£	£
1935 July 1	To Balance .	T.B.		7	342	1935 Dec. 31	By Cash paid to Bank .	Bank		11,472	
1935 Dec. 31	To Cash received from Debtors	A/c 5		11,480			,, Creditors paid . .	A/c 6			6,438
	,, Discounts allowed .	A/c 5	234				,, Discounts received .	A/c 6	96		
	,, Cash paid to Bank . .	Cash			11,472		,, Drawings—Ferrous .	A/c 3			300
							Non-Ferrous . .	A/c 4			300
							,, Salaries .	A/c 16			370
							,, Wages .	A/c 15			3,568
							,, Petty Cash .	A/c 25			320
							,, Balance c/d			15	518
			£234	£11,487	£11,814				£96	£11,487	£11,814
1936 Jan. 1	To Balance .		A/c 24 b/d	£15	£518				A/c 24		

SALES LEDGER

(A Total Account replacing the Individual Accounts.)

SUNDRY DEBTORS (*Account No.* 5)

Dr. *Cr.*

1935			£	1935			£
July 1	To Balances per Trial Balance .	T.B.	3,159	Dec. 31	By Cash received per Cash Book	C.B.	11,480
Dec. 31	„ Sales. . .	A/c 26	12,368		„ Discounts allowed—do. .	A/c 24	234
					„ Bad Debts written off . .	A/c 23	182
					„ Balances c/d .		3,631
			£15,527				£15,527
1936 Jan. 1	To Balances b/d .		£3,631				

BOUGHT LEDGER

(A Total Account being used as before.)

SUNDRY CREDITORS (*Account No.* 6)

Dr. *Cr.*

1935			£	1935			£
Dec. 31	To Cheques drawn per Cash Book	C.B.	6,438	July 1	By Balances per Trial Balance	T.B.	2,796
	„ Discounts rec'v'd per Cash Book	A/c 24	96	Dec. 31	„ Purchases and Expenses per Summary— A/c		
	„ Balances c/d .		2,642		Materials . 27	5,382	
					Rates . 22	60	
					Telephone 28	18	
					Insur'ces 21	65	
					Plant ad's 8	185	
					Plant Repairs . 29	146	
					Advertising and St'nery . 17	210	
					Patterns . 9	42	
					Manuf'g Sundries 30	179	
					Motor Expenses 18	93	6,380
			£9,176				£9,176
				1936 Jan. 1	By Balances b/d .		£2,642

NOMINAL LEDGER

FREEHOLD PROPERTY (*Account No.* 7)

Dr. *Cr.*

1935			£				
July 1	To Balance per Trial Balance .	T.B.	4,600				

PLANT AND MACHINERY (*Account No.* 8)

Dr. *Cr.*

			£				£
1935 July 1	To Balance per Trial Balance .	T.B.	3,543	1935 Dec. 31	By Depreciation .	A/c 57	265
Dec. 31	„ Outlay per Purchase Summary	A/c 6	185		„ Balance c/d .		3,495
	„ Outlay ex Standing Order No. 3	A/c 41	32				
			£3,760				£3,760
1936 Jan. 1	To Balance b/d .		£3,495				

PATTERNS (*Account No.* 9)

Dr. *Cr.*

			£				£
1935 July 1	To Balance per Trial Balance .	T.B.	896	1935 Dec. 31	By Amount written off . .	A/c 57	38
Dec. 31	„ Outlay per Purchase Summary	A/c 6	42		„ Balance c/d .		900
			£938				£938
1936 Jan. 1	To Balance b/d .		£900				

WORKS FIXTURES (*Account No.* 10)

Dr. *Cr.*

			£				£
1935 July 1	To Balance per Trial Balance .	T.B.	237	1935 Dec. 31	By Depreciation .	A/c 57	24
Dec. 31	„ Outlay ex Standing Order No. 10	A/c 48	10		„ Balance c/d .		223
			£247				£247
1936 Jan. 1	To Balance b/d .		£223				

MOTOR LORRY (*Account No.* 11)

Dr. *Cr.*

			£				£
1935 July 1	To Balance per Trial Balance .	T.B.	232	1935 Dec. 31	By Depreciation .	A/c 57	52
					„ Balance c/d .		180
			£232				£232
1936 Jan. 1	To Balance b/d .		£180				

Works Van (*Account No.* 12)

Dr. *Cr.*

			£			A/c	£
1935 July 1	To Balance per Trial Balance .	T.B.	146	1935 Dec. 31	By Depreciation .	57	46
					,, Balance c/d .		100
			£146				£146
1936 Jan. 1	To Balance b/d .		£100				

Car (*Account No.* 13)

Dr. *Cr.*

			£			A/c	£
1935 July 1	To Balance per Trial Balance .	T.B.	95	1935 Dec. 31	By Depreciation .	57	25
					,, Balance c/d .		70
			£95				£95
1936 Jan. 1	To Balance b/d .		£70				

Office Furniture (*Account No.* 14)

Dr. *Cr.*

			£			A/c	£
1935 July 1	To Balance per Trial Balance .	T.B.	72	1935 Dec. 31	By Depreciation .	57	8
					,, Balance c/d .		64
			£72				£72
1936 Jan. 1	To Balance b/d .		£64				

Wages (*Account No.* 15

Dr. *Cr.*

			£				£
1935 Dec. 31	To Cheques drawn per Cash Book	C.B.	3,568	1935 July 1	By Reserve for Wages due per Trial Balance	T.B.	79
	,, Labour Control Account .	A/c 35	79	Dec. 31	,, Labour Control Account .	A/c 35	3,568
				1935 Dec. 31	By Wages Outstanding .	A/c 35	£48

Salaries (*Account No.* 16)

Dr. *Cr.*

			£				£
1935 Dec. 31	To Cheques drawn per Cash Book	C.B.	370	1935 July 1	By Reserve for Salaries due per Trial Bal..	T.B.	14
				Dec. 31	,, Oncost Summary Account	A/c 57	356
				1935 Dec. 31	By Oncost Summary A/c – Reserve for Salaries due .	A/c 57	£21

Advertising and Stationery (*Account No.* 17)

Dr. *Cr.*

			£				£
1935 Dec. 31	To Outlay per Purchase Summary	A/c 6	210	1935 July 1	By Amount outstanding per Trial Balance	T.B.	23
				Dec. 31	,, Oncost Summary Account	A/c 57	187

Motor Expenses (*Account No.* 18)

Dr. *Cr.*

			£				£
1935 Dec. 31	To Outlay per Purchase Summary	A/c 6	93	1935 July 1	By Amount outstanding for Lorry Repairs per Trial Bal.	T.B.	12
	,, Petrol and Oil per Petty Cash .	A/c 25	69	Dec. 31	,, Oncost Summary Account	A/c 57	150

Professional Charges (*Account No.* 19)

Dr. *Cr.*

			£				£
1935 Dec. 31	To Oncost Summary Account . .	A/c 57	30	1935 July 1	By Amount outstanding for Audit Fees per Trial Balance	T.B.	30
				1935 Dec. 31	By Oncost Summary Account: Reserve for Amount due .	A/c 57	£48

Trading Stocks (*Account No.* 20)

Dr. *Cr.*

			£				£
1935 July 1	To Balance per Trial Balance— Materials .	T.B.	679	1935 Dec. 31	By Material Control Account Raw Material	A/c 36	679
	Finished and Partly-finished Material £680 Labour 311	T.B.	991		Material in Finished and Partly-finished goods .	36	680
					„ Labour Control Account .	35	311
1935 Dec. 31	To Values at this date— Materials .	A/c 36	£ 760				
	Finished and partly finished— Material £812 Labour . 240	36 35	1,052				
			£1,812				

Insurances (*Account No.* 21)

Dr. *Cr.*

			£				£
1935 July 1	To Reserve for Fire Insurances paid in advance—per Trial Balance .	T.B.	38	1935 Dec. 31	By Oncost Summary Account	A/c 57	103
Dec. 31	„ Outlay per Purchase Summary	A/c 6	65				
1935 Dec. 31	To Oncost Summary Account— Insurances pd. in advance .	A/c 57	£10				

Rates (*Account No.* 22)

Dr. *Cr.*

			£				£
1935 July 1	To Reserve for Rates paid in advance per Trial Bal. .	T.B.	29	1935 Dec. 31	By Oncost Summary Account	A/c 57	89
Dec. 31	To Outlay per Purchase Summary	A/c 6	60				
1935 Dec. 31	To Oncost Summary Account— Rates paid in advance .	A/c 57	£15				

BAD DEBTS (*Account No.* 23)

Dr. *Cr.*

			£				£
1935 Dec. 31	To Bad Debts written off per Sundry Debtors A/c	A/c 5	182	1935 July 1	By Reserve — per Trial Balance	T.B.	236
	„ Oncost Summary Account .	A/c 57	54				
				1935 Dec. 31	By Oncost Summary Account – Reserve at this date .	A/c 57	£120

DISCOUNTS (*Account No.* 24)

Dr. *Cr.*

			£				£
1935 Dec. 31	To Discounts allowed per Cash Book	A/c 5	234	1935 July 1	By Reserve — per Trial Balance	T.B.	84
				Dec 31	„ Discounts recd. per Cash Book	A/c 6	96
					„ Oncost Summary Account	A/c 57	54
				1935 Dec. 31	By Oncost Summary Account – Reserve for Discounts to be allowed .	A/c 57	£60

PETTY CASH (*Account No.* 25)

Dr. *Cr.*

			£				£	£
1935 Dec. 31	To Cheques drawn per Cash Book	C.B.	320	1935 Dec. 31	By Expenses, viz. —	A/c		
					Postages .	31	28	
					Carriage	32	47	
					N. Insce..	33	101	
					Wrapping & Packing	34	67	
					Petrol and Oil .	18	69	
								312
					„ Balance in hand .	c/d		8
			£320					£320
1936 Jan. 1	To Balance in hand	b/d	. £8					

Sales *(Account No. 26)*

Dr. *Cr.*

1935 Dec. 31	To Transfer Trading Account .	T.A.	£ 12,368	1935 Dec. 31	By Sales for the six months .	A/c 5	£ 12,368

Purchases *(Account No. 27)*

Dr. *Cr.*

1935 Dec. 31	To Outlay per Purchase Summary	A/c 6	£ 5,382	1935 Dec. 31	By Material Control Account .	A/c 36	£ 5,382

Telephone *(Account No. 28)*

Dr. *Cr.*

1935 Dec. 31	To Outlay per Purchase Summary	A/c 6	£ 18	1935 Dec. 31	By Oncost Summary Account	A/c 57	£ 18
				1935 Dec. 31	By Oncost Summary Account	A/c 57	£4

Plant Repairs *(Account No. 29)*

Dr. *Cr.*

1935 Dec. 31	To Outlay per Purchase Summary	A/c 6	£ 146	1935 Dec. 31	By Oncost Summary Account	A/c 57	£ 146

Manufacturing Sundries *(Account No. 30)*

Dr. *Cr.*

1935 Dec. 31	To Outlay per Purchase Summary	A/c 6	£ 179	1935 Dec. 31	By Oncost Summary Account	A/c 57	£ 179

Postages *(Account No. 31)*

Dr. *Cr.*

1935 Dec. 31	To Expenditure per Petty Cash .	A/c 25	£ 28	1935 Dec. 31	By Oncost Summary Account	A/c 57	£ 28

CARRIAGE (*Account No.* 32)

Dr. *Cr.*

		A/c	£			A/c	£
1935 Dec. 31	To Sundries per Petty Cash .	25	47	1935 Dec. 31	By Oncost Summary Account	57	47

NATIONAL INSURANCE (*Account No.* 33)

Dr. *Cr.*

		A/c	£			A/c	£
1935 Dec. 31	To Sundries per Petty Cash .	25	101	1935 Dec. 31	By Oncost Summary Account	57	101

WRAPPING AND PACKING (*Account No.* 34)

Dr. *Cr.*

		A/c	£			A/c	£
1935 Dec. 31	To Sundries per Petty Cash .	25	67	1935 Dec. 31	By Oncost Summary Account	57	67

Cost Ledger

LABOUR CONTROL ACCOUNT (*Account No.* 35)

Dr. *Cr.*

		A/c	£			A/c	£
1935 Dec. 31	To Labour in Finished and Partly-finished Stock at 1st July, 1935	20	311	1935 Dec. 31	By Labour expended— Direct productive:	37	2,696
	„ Wages .	15	3,568		Stdg. Order No. 1 .	39	19
	„ Reserve for Wages Outstanding . .	15	48		„ 2 .	40	396
					„ 3	41	32
					„ 4 .	42	41
					„ 6 .	44	12
					„ 8 .	46	25
					„ 9 .	47	8
					„ 10 .	48	10
					„ 13 .	51	136
					„ 14 .	52	22
					„ 15	53	54
					„ 16	54	50
					„ 17 .	55	50
							3,551
					„ Wages . .	15	79
					„ Wages in Stocks	20	240
					„ Labour not accounted for .	58	57
			£3,927				£3,927

MATERIAL CONTROL ACCOUNT (*Account No.* 36)

Dr. *Cr.*

		A/c	£			A/c	£
1935 Dec. 31	To Transfer of Stocks at 1st July, 1935			1935 Dec. 31	By Materials used on Wks. Orders	38	5,014
	Raw Material:	20	679		Stdg. Order:		
	Material in Finished and Partly-finished Stock .	20	680		No. 4 .	42	10
	,, Purchases . .	27	5,382		,, 6 .	44	3
					,, 18 .	56	15
							5,042
					,, Materials in Stock . .	20	1,572
					,, Material not accounted for	59	127
			£6,741				£6,741

DIRECT LABOUR (*Account No.* 37)

Dr. *Cr.*

			£				£
1935 Dec. 31	To Direct Labour per Wages Summary	A/c 35	2,696	1935 Dec. 31	By Transfer Trading Account .	T.A.	2,696

DIRECT MATERIAL (*Account No.* 38)

Dr. *Cr.*

			£				£
1935 Dec. 31	To Direct Material per Material Summary .	A/c 36	5,014	1935 Dec. 31	By Transfer Trading Account .	T.A.	5,014

STANDING ORDER NO. 1 (*Account No.* 39)
(*General Odd Labour*)

Dr. *Cr.*

			£				£
1935 Dec. 31	To Labour per Wages Summary .	A/c 35	19	1935 Dec. 31	By Oncost Summary Account	A/c 57	19

STANDING ORDER NO. 2 (*Account No.* 40)
(*Supervision*)

Dr. *Cr.*

			£				£
1935 Dec. 31	To Labour per Wages Summary .	A/c 35	396	1935 Dec. 31	By Oncost Summary Account	A/c 57	396

Standing Order No. 3 (*Account No.* 41)

Dr. (*Plant Additions*) ***Cr.***

1935			£	1935			£
Dec. 31	To Labour per Wages Summary .	A/c 35	32	Dec. 31	By Transfer Plant and Machinery	A/c 8	32

Standing Order No. 4 (*Account No.* 42)

Dr. (*Plant Maintenance*) ***Cr.***

1935			£	1935			£
Dec. 31	To Labour per Wages Summary	A/c 35	41	Dec. 31	By Oncost Summary Account	A/c 57	51
	„ Material per Material Summary	36	10				
			£51				£51

Standing Order No. 5 (*Account No* 43)

Dr. (*Pattern Additions*) ***Cr.***

Standing Order No. 6 (*Account No.* 44)

Dr. (*Pattern Maintenance*) ***Cr.***

1935			£	1935			£
Dec. 31	To Labour per Wages Summary .	A/c 35	12	Dec. 31	By Oncost Summary Account	A/c 57	15
	„ Material per Material Summary	36	3				
			£15				£15

Standing Order No. 7 (*Account No.* 45)

Dr. (*Building Additions*) ***Cr.***

STANDING ORDER NO. 8 (*Account No.* 46)

Dr. (*Building Maintenance*) *Cr.*

1935 Dec. 31	To Labour per Wages Summary .	A/c 35	£ 25	1935 Dec. 31	By Oncost Summary Account	A/c 57	£ 25

. STANDING ORDER NO. 9 (*Account No.* 47)

Dr. (*Idle Time*) *Cr.*

1935 Dec. 31	To Labour per Wages Summary .	A/c 35	£ 8	1935 Dec. 31	By Oncost Summary Account	A/c 57	£ 8

STANDING ORDER NO. 10 (*Account No.* 48)

Dr. (*Additions to Works Fixtures*) *Cr.*

1935 Dec. 31	To Labour per Wages Summary .	A/c 35	£ 10	1935 Dec. 31	By Transfer Works Fixtures .	A/c 10	£ 10

STANDING ORDER NO. 11 (*Account No.* 49)

Dr. (*Repairs to Works Fixtures*) *Cr.*

STANDING ORDER NO. 12 (*Account No.* 50)

Dr. (*Repairs to Office Equipment*) *Cr.*

STANDING ORDER NO. 13 (*Account No.* 51)

Dr. (*Stores*) *Cr.*

1935 Dec. 31	To Labour per Wages Summary .	A/c 35	£ 136	1935 Dec. 31	By Oncost Summary Account	A/c 57	£ 136

STANDING ORDER NO. 14 (*Account No.* 52)

Dr. (*Motor Vehicle Repairs*) *Cr.*

1935 Dec. 31	To Labour per Wages Summary	A/c 35	£ 22	1935 Dec. 31	By Oncost Summary Account	A/c 57	£ 22

STANDING ORDER NO. 15 (*Account No.* 53)

Dr. (*Lorry Driving*) *Cr.*

1935 Dec. 31	To Labour per Wages Summary	A/c 35	£ 54	1935 Dec. 31	By Oncost Summary Account	A/c 57	£ 54

STANDING ORDER NO. 16 (*Account No.* 54)

Dr. (*Works Van Driving*) *Cr.*

1935 Dec. 31	To Labour per Wages Summary	A/c 35	£ 50	1935 Dec. 31	By Oncost Summary Account	A/c 57	£ 50

STANDING ORDER NO. 17 (*Account No.* 55)

Dr. (*Staff Car Driving*) *Cr.*

1935 Dec. 31	To Labour per Wages Summary	A/c 35	£ 50	1935 Dec. 31	By Oncost Summary Account	A/c 57	£ 50

STANDING ORDER NO. 18 (*Account No.* 56)

Dr. (*Advertising*) *Cr.*

1935 Dec. 31	To Material used per Summary	A/c 36	£ 15	1935 Dec. 31	By Oncost Summary Account	A/c 57	£ 15

ONCOST SUMMARY ACCOUNT (*Account No.* 57)

Dr. *Cr.*

		A/c	£			A/c	£
1935 Dec. 31	To *Sundry Transfers*—			1935 Dec. 31	By Transfers—		
	Salaries	16	356		Professional Chgs.	19	30
	Advertising and Stationery	17	187		Bad Debts	23	54
	Motor Expenses	18	150		„ Reserves—		
	Insurance	21	103		Insurance	21	10
	Rates	22	89		Rates	22	15
	Carried forward		£885		Carried forward		£109

ONCOST SUMMARY ACCOUNT—(*contd.*)

Dr.

1935		A/c	£
Dec. 31	Brought forward		885
	To *Sundry Transfers*—		
	Discounts	24	54
	Telephone	28	18
	Plant Repairs	29	146
	Mnfg. Sundries	30	179
	Postages	31	28
	Carriage	32	47
	National Insurance	33	101
	Wrapping & Packing	34	67
	Supervision	40	396
	Gen. Odd Labour	39	19
	Plant Maintenance	42	51
	Pattern ,,	44	15
	Building ,,	46	25
	Idle Time recorded	47	8
	Stores	51	136
	Motor Repairs	52	22
	Lorry Driving	53	54
	Works Van Driving	54	50
	Staff Car Driving	55	50
	Advertising	56	15
	,, *Sundry Reserves*—		
	Bad Debts	23	120
	Salaries	16	21
	Professional Charges	19	48
	Discounts	24	60
	Telephone	28	4
	,, *Depreciations*—		
	Plant & Machinery	8	265
	Works Fixtures	10	24
	Motor Lorry	11	52
	Works Van	12	46
	Staff Car	13	25
	Office Furniture	14	8
	Patterns	9	38
			£3,077

Cr.

1935			A/c	£
Dec. 31	Brought forward			109
	By Transfer—			
	Profit and Loss A/c:			
	Mnfg. Sundries		P. & L.	179
	Idle Time recorded			8
	Supervision and Unproductive Lbr.			
	Salaries	£377		
	Gen. Supvn.	396		
	Stores	136		
	Gen. Odd Lbr.	19		
	Lorry Driving	54		
	Wks. Van Dr'g	50		
	Stf. Car Dr'ng	50		1,082
	Repair Costs—			
	Plant M'nt'ce (£146 + £51)	197		
	Bldg. Repairs	25		
	Pattern M'ntce (£15 + £38)	53		275
	Selling & Distn. –			
	Advtng.& Stny. (£187+£15)	£202		
	Mtr. Running Exs.(150+22)	172		
	Discounts (£54 + £60)	114		
	Postages	28		
	Carriage	47		
	Wrapping and Packing	67		
	Bad Debts (£120 − £54)	66		696
	Gen. & Establishm't			
	Insurances (£103 − £10)	£93		
	Rates (£89 − £15)	74		
	Telephone (£18 + £4)	22		
	Nat. Insce.	101		
	Prof. Charges (£48 − £30)	18		308
	Depreciation—			
	Plant & Mchy	£265		
	Wks. Fixtures	24		
	Mtr. Lorry	52		
	Works Van	46		
	Staff Car	25		
	Office Furn.	8		420
				£3,077

LABOUR NOT ACCOUNTED FOR (*Account No.* 58)

Dr. *Cr.*

			£				£
1935 Dec. 31	To Transfer— Labour Control Account . .	A/c 35	57	1935 Dec. 31	By Transfer— Profit & Loss Account .	P. & L.	57

MATERIAL NOT ACCOUNTED FOR (*Account No.* 59)

Dr. *Cr.*

			£				£
1935 Dec. 31	To Transfer— Material Control Account . .	A/c 36	127	1935 Dec. 31	By Transfer— Profit & Loss Account .	P. & L.	127

GLOSSARY

ABSTRACT. A schedule of details compiled from general records for a definite given purpose, e.g. Materials or Wages Abstract.

ADMINISTRATION COST. The costs of management of a commercial organization, e.g. Directors' Fees, Management Salaries, Cost Office Salaries and Expenses; distinct from Establishment Charges, Costs of Financing, Selling and Distribution, which should be computed separately.

ALLOCATION. The earmarking of a particular expenditure or of a receipt or credit in part or wholly to the cost of production of a particular department, of a particular group of articles, of a particular unit of production or to a non-productive classification.

AVERAGE BUYING PRICE. The price which represents the general experience of buying over a period or in connexion with a particular department or contract, having regard to inequalities of individual prices paid or of quantities purchased.

BONUS (WAGES). An addition to the normal return for labour expended, usually given in accordance with a plan to increase output, reduce time occupied by production or to improve the quality of the production.

BUDGET. A programme of estimated income and expenditure to which a commercial unit should work in order to obtain the result anticipated.

BUDGETARY CONTROL. The governing of the activities of an organization by means of a prepared budget.

BURDEN. See ONCOST.

COMPONENT COST. The cost of a particular piece or unit forming part of a complex or compound unit, e.g. a valve of an internal combustion engine.

CONTRACT COST. Details assembled to display the cost of carrying out a definite piece of work within defined limits and in a definite period.

COSTING. Ascertaining the total expenses (productive and non-productive) incurred in the production of a commodity or carrying out a job or contract.

COST ACCOUNTANT. The official responsible for the collation of Cost Accounts.

Cost Accounting. The science of collating facts appertaining to cost of production, in figure form.

Day Work. A method of remunerating labour for the work produced on the basis of the number of hours such labour has been so engaged.

Departmental Cost. The cost of operating definite sections of a business as distinct from the costs of individual units of production, e.g. cost of running a Plating Department as distinct from the total cost of manufacturing an oxidized silver curb.

Depreciation. The amount of loss in capital value of an asset during a particular period.

Direct Labour. Labour expended in actual and direct operations on material for the purpose of changing it to a partly-finished or finished sales article.

Establishment Charges. The normal "fixed" charges of maintaining a commercial organization. Expenses applicable to the Head Office or "Control" section of the undertaking, e.g. Rent and Rates, apart from that proportion applicable to the Works (Trading Oncost), Showrooms (Selling Oncost), and Cost Office (Administration Expenses).

Estimating. An attempt to approximate what the actual cost of a production may be by making use where possible of the results of past experience.

Factory Cost. The cost of producing up to the point where the saleable article is in a condition to be dispatched. This cost should not include any administration, office, or distribution selling charges.

Factory Oncost. That part of the total Oncost, overhead charges or burden, which is primarily associated with the conduct of production within the factory.

Finished Stores. That section of the stores in which are housed articles or parts bought out finished, or which have been finished within the Works, being ready for sale or assembly into completed units.

General Oncost. Indirect expenses which cannot be allocated direct to a given unit or department of production.

General Oncost Distribution Account. An Account which shows the apportionment of oncost as between departments or units of production and compares actual oncost incurred with the amounts recovered in Sales.

Goods Inward. Materials in any form received by a Works or Factory in the conduct of its business. A Record of

Goods Inward is usually kept as an aid to the maintenance of accurate stores records.

IDLE TIME. Time for which Wages are paid, but which is not represented by any production value. The Cost system should enable the cost of this to be ascertained as a separate item of oncost.

INVENTORY. A Schedule set out to display the nature and value of the items included in it.

LABOUR COST. The amount paid to employees engaged directly upon the work of changing materials either manually or by machinery into saleable form (Productive) or engaged on maintenance or other indirect matters (Unproductive).

LOSS (GROSS). The excess of the cost of production over its sale value.

LOSS (NET). Loss arising where the total of non-productive charges exceeds the gross profit.

MACHINE HOUR RATE. The hourly cost of using a machine or group of machines, including the proportion of indirect expenses attributable to the machine or machines concerned.

MAINTENANCE. The cost of preserving an Asset in its normal working condition.

MAN-HOUR RATE. The cost of production in a suitable section of a manufacturing organization, ascertained by reference to the number of "employee working hours" occupied.

MANUFACTURING ACCOUNT. An account to which is charged material and labour expended on production, with the addition of direct expenses, giving the cost of production which is compared with the total of Sales in the Trading Account to give the Gross Profit.

MATERIALS. A term used to indicate those supplies which form an integral part of production in its saleable form, e.g. hide, brass, partly-finished or finished components.

MATERIALS ABSTRACT. A Schedule of Materials consumed in the manufacture of a given article, number of articles, process or contract.

MULTIPLE COST. The method of recording costs applicable where the manufacturing programme covers a variety of articles having little or no relation to each other.

NATIONAL INSURANCE. Contributions shared by the employer and the employee and made to a National Insurance Fund created by the National Insurance Act, 1911, for the benefit of employed persons.

NON-PRODUCTIVE WAGES. Wages paid to those not engaged directly upon the production of the saleable output. Sometimes referred to as "Indirect Wages."

NORMAL FACTORY OUTPUT. That quantity of saleable products whether expressed by value or otherwise (that is, weight, etc.) which should be manufactured with the facilities at command fully employed over the accepted working hours during a financial period.

NORMAL STANDARD. Any unit of measurement based upon normal costs.

NORMAL WORKING CHARGES. The indirect or unproductive expenses incurred in producing the normal factory output.

ONCOST. Indirect expenses of production, also referred to as overhead charges or burden, added to prime cost upon an agreed basis to include all those expenses which are not represented in the wages paid for actual production or for materials in course of transformation from one process or condition to another, e.g. rent, rates, power, heating, wages paid to labourers, foremen, etc.

ONCOST DISTRIBUTION ACCOUNT. An account showing the make-up, distribution and recovery of oncost.

OPERATION COST. The cost of executing a specified operation or series of operations upon a given material unit, e.g. boring and grinding a cylinder, case-hardening or annealing a piece of metal.

OPERATING COSTS. The cost in materials, wages and overhead or indirect charges of supplying a public service, such as a Tramway, a Water, Gas, Electrical or other suitable undertaking.

OVERHEAD CHARGES. See ONCOST. Overhead may be divided into (*a*) Production Overhead; (*b*) Selling Overhead; (*c*) Distribution Overhead; (*d*) Administration Overhead.

PERMANENT ORDERS. See STANDING ORDERS.

PIECE WORK. A method of remunerating labour for satisfactory work by means of payment by results. The formulae used cover a definite agreed price for an operation or the production of a given unit or group of units.

PLANT REGISTER. A Register or Schedule of all Plant, indicating its locality in the Works, its original asset value at the time of installation and the depreciation to which the value has been subjected.

PRIME COST. The amount expended upon material and wages directly consumed in the production of the saleable product.

PRODUCTION ORGANIZATION. The whole of the manufacturing unit, excluding the administrative and commercial sections.

PRODUCTIVE WAGES. The wages paid to those employees who are engaged directly upon the production of the saleable product, e.g. wages paid to a machinist working upon an engine component, which is one of the articles included in the total production.

PROFIT AND LOSS ACCOUNT. An Account portraying the profit or loss occurring after the administration, commercial and selling charges have been charged against the gross profit brought forward from the Manufacturing or Trading Account.

PROGRESS. The term used to indicate the tracing of manufacturing from operation to operation, and of giving effect to the arrangements made under a system of shop or production planning.

PROGRESS STORES. A stores which conveniently houses manufacture in its various stages of operation, that is, from the first operation of manufacture until the completed order is passed to the component or finished stores.

RATE FIXING. The calculating of the labour price which should be paid for the carrying out of a process or operation under average conditions upon material of normal quality.

RAW MATERIALS. Materials in their original state held for the purpose of conversion into finished products or components by the application of labour effort.

REQUISITION. A document authorizing the issue from stores of specific material or Components in accordance with a Works order.

ROUGH STORES. The accommodation afforded for the purpose of housing supplies usually classified as Raw Materials.

SELLING ONCOST. The expense of marketing the manufactured product.

SELLING PRICE. The total of Prime Cost, Oncost (Works, distribution, selling and general) and Profit.

SINGLE COSTS. A term applied to Costs where a suitable unit can be used as a standard such as the ton, the barrel, the yard; e.g. Collieries, Mines, Breweries.

STANDARD COST. A measurement of Cost based on production under conditions which are general or average, and which is used to test the degree of efficiency of subsequent production.

STANDARD OF MEASUREMENT. See STANDARD COST.

STANDING ORDERS. Orders which govern the carrying out of work of a non-productive nature, including maintenance and other essential services. Sometimes referred to as "Permanent Orders."

STATISTICAL RECORD. A tabulation of figures so constructed as to portray a given result in a special way and for a special purpose.

STOCK ORDERS. Orders issued to the Works authorizing production in accordance with a definite plan for controlling the quantities to be held in stock.

SUBS. Amounts paid on account of work in course of production in advance of the recognized Pay Days.

SUBSIDIARY BOOKS. Books of prime or original entry, such as the Journal, the Purchases and Expenses Day Book and the Sales Journal.

TERMINAL COSTS. A term applied to costs which cover a definite piece of work completed over a definite period, such as building, constructional engineering, and the like.

TRADING ACCOUNT. An Account which sets off the prime cost of production against the sales effected, thereby showing the gross profit or loss resulting which is subject to the deduction or addition (as the case may be) of the overhead and establishment charges before arriving at net profit or loss.

TURNOVER. The gross amount of saleable products which have been disposed of during a set period.

WAGES ABSTRACT. A Schedule collating wages paid used as a medium for postings to individual job costs or as required.

WAGES BONUS. See BONUS (WAGES).

WORK IN PROGRESS. A term used to represent that material which, having left the rough stores, is in course of manufacture, but has not completed its final stage of operation.

WORKS COST. See FACTORY COST.

WORKS ONCOST. See FACTORY ONCOST.

WORKS ORDER. An order issued authorizing the manufacture of a given article or group of articles.

QUESTIONS SET AT PUBLIC EXAMINATIONS

REPRODUCED BY PERMISSION OF THE EXAMINING BODIES MENTIONED

1. Describe in order what you would do if asked to install a costing system in a business of which you had no previous knowledge.

(*Society of Incorporated Accountants and Auditors, Inter.*)

2. Draft a form of "Stores Ledger," make a few entries therein, and state the origin of the entries.

(*Corporation of Accountants, Final.*)

3. State, with reasons, to which types of industries the following methods of costing are applicable—

(*a*) Job, Contract or Terminal Costs.
(*b*) Single or Output Costs.
(*c*) Multiple Costs.
(*d*) Departmental Costs.
(*e*) Process Costs.
(*f*) Operating Costs.

(*Institute of Cost and Works Accountants, Inter.*)

4. "One of the advantages of a Cost System is its aid in the control of expenditure."

Set out in summarized form the directions in which this control operates.

(*Society of Incorporated Accountants and Auditors, Final.*)

5. State what instructions you would give for the recording and control of wages, taking as an example a system of payment with which you are familiar. Specify the advantages of the methods you suggest.

(*Institute of Company Accountants, Final.*)

6. Define—

(*a*) Fixed Oncost. (*b*) Fluctuating Oncost.

State six items of expense which would be included under each heading.

(*Corporation of Accountants, Final.*)

7. How do you consider cash discounts on purchases and on sales should be accounted for? Would you include them in the cost accounts and. if so, why?

(*Institute of Cost and Works Accountants, Inter.*)

8. In what connexion is the term "machine hour rate" used? Enumerate the items and factors to be included and excluded in computing such a rate.

(*Society of Incorporated Accountants and Auditors, Inter.*)

9. How would you deal in Cost Accounts with—
   (*a*) Idle time.
   (*b*) Defective work?
   (*c*) Expenditure on research?

(*Society of Incorporated Accountants and Auditors, Inter.*)

10. Explain the method of dealing with the pricing of stores for stocktaking and issue purposes where the cost prices fluctuate.

(*Institute of Company Accountants, Final.*)

11. A Works manufactures a piece of plant which entails operations in several departments. On completion the plant is installed as an addition to the existing plant. How should this item be treated in the accounts?

(*Institute of Company Accountants, Final.*)

12. At the end of an accounting period it is found that the whole of the Overhead Charges have not been entirely absorbed by allocation to Cost Accounts. What circumstances could have contributed to this position?

(*Institute of Company Accountants, Final.*)

13. Prepare a Schedule showing allocation of Oncost between three departments of a factory, viz. A, B, and C. The expenses for the year ended 31st March, 1934, extracted from the financial books, are as follows—

	£
Electric Light	250
Electric Power	640

Heating	£300
Workmen's Compensation Insurance	140
Fire Insurance on Plant	64
Depreciation on Plant at 10% per annum	300
Plant Repairs	256
Material Handling Charges	500
Rent and Rates	750

You also obtain the following information—

	"A" Dept.	*"B" Dept.*	*"C" Dept.*
Direct Wages on Production	£2,400	£1,600	£3,000
Floor Space	30%	20%	50%
Direct Wage-earners	20	17	33
Materials used	£2,000	£2,000	£4,000
Value of Plant	£1,000 (20 Machines)	£500 (12 Machines)	£1,500 (32 Machines)

Calculate the total oncost allocated to each department as a percentage on the direct Wages, and show the basis of your allocation for each item of expense.

(*Corporation of Accountants, Final.*)

14. In comparing costs of production in different manufacturing organizations, the question as to what constitutes cost is of considerable importance, and differences of opinion frequently arise. Would you consider that the following items of expenditure are properly chargeable to the cost of production?—

(1) The cost of removing machinery from one department to another.

(2) Directors' Fees.

(3) Income Tax paid on the business premises under Schedule A.

(4) Mortgage Interest.

(5) Bank Interest.

(*The London Association of Certified Accountants, Final.*)

15. How would you ascertain the cost per article in the case of a commodity which was being continually turned out, and in respect of which wastage occurred during the process of manufacture and also in the assembling? Give examples to illustrate your answer.

(*The Institute of Cost and Works Accountants, Final.*)

16. The Excelsior Delivery Co. operates a fleet of motor vehicles. Prepare a Statement showing the cost per mile for

the month of April, 1933, from the following particulars, viz.—

	£	s.	d.
Wages for month	100	0	0
Petrol used ,,	70	0	0
Oil, etc. ,,	8	11	8
Original Cost of Vehicles on 1st April, 1931	2,000	0	0
Depreciation at 25% per annum on diminishing value to be written off.			
Miles run during month, 20,000.			
Repairs during year ended 31st Mar., 1933	312	0	0
Tyres, Tubes, etc. ,, ,,	240	0	0
Licences, Insurance, etc. ,, ,,	252	0	0
Garage Rent and Rates ,, ,,	156	0	0
General Expenses ,, ,,	480	0	0

(*Corporation of Accountants, Final.*)

17. In many industries the making of costly patterns or, in other cases, dies, is necessary before production of an article can take place. The effect of this initial expense upon the cost of producing the article depends upon the quantity of articles likely to be required. How would you deal with this factor of cost—

(*a*) In preparing estimates of the cost of any particular article?

(*b*) In determining the Oncost expense of the Department making use of the patterns or dies?

Patterns frequently require to be repaired or altered after use. How would you deal with this expense in preparing the required information under (*a*) and (*b*)?

(*The London Association of Certified Accountants, Final.*)

18. Gadgets Ltd. manufacture various standard articles. The costs of Article No. 17 are as follows—

	£	s.	d.
Materials used	9	0	0
Direct Wages	6	0	0
Direct Charges	1	0	0
Prime Cost	£16	0	0
Works Oncost (150% on Direct Wages)	9	0	0
Works Cost	£25	0	0
Office Oncost (10% on Works Cost)	2	10	0
Cost of Production	£27	10	0

Carried forward

	£	s.	d.
Brought forward .	27	10	0
Selling Oncost (rate per article)	5	10	0
Cost of Sales	33	0	0
Net Profit	5	0	0
Usual Selling Price . . .	£38	0	0

The manufacturers are offered a Contract to supply 100 articles at the price of £25 each.

In what circumstances would it be advantageous to accept this contract? Give reasons for your answer.

Works Expenses are 70 per cent fixed and 30 per cent fluctuating with production.

Office Expenses may be considered as constant irrespective of production.

Selling Expenses are 50 per cent fixed and 50 per cent fluctuating with Sales.

(*Corporation of Accountants, Final.*)

19. A Ltd. sells its produce to its numerous customers at prices which include carriage from the Company's factory to the customer's premises.

Until 31st December, 1933, delivery had been carried out by B Ltd., haulage contractors, who charged A Ltd. for carriage on the weight of the loads at rates graduated according to distance.

A Ltd. decided to set up its own transport organization and on 1st January, 1934, purchased lorries and engaged drivers. In fixing the number, first consideration was given to the requirements of prompt delivery, although it was recognized that, owing to fluctuations in sales, there might be occasional idleness.

The lorries were to be used also to carry raw materials from the docks to the factory; these had previously been brought by rail.

The accountant was instructed to keep the books in such a way that the Directors could ascertain whether, in the light of the facts of the year 1934, the change has been profitable.

Design an account from which the facts can be ascertained, omitting figures, and describe briefly how the particulars for the account can be obtained from the books.

(*Institute of Chartered Accountants, Final.*)

20. In a Trading year just completed, the Sold Turnover was £40,000. If plans are being made to realize a Sold Turnover of £60,000 in the current year, how would you propose to deal with the recovery of Factory and General Oncost? Use any assumed figures in your answer.

(*International Accountants' and Executives' Corporation, Final.*)

21. A departmental store spent £2,500 on newspaper advertising, £500 on catalogues, £350 on printing and posting circulars, and £400 on electric signs. There were five departments which varied in size and also in sales turnover, and the facilities mentioned were used to a greater extent by some departments than by others. How would you distribute the cost of the various advertising expenses? State your reasons.

(*Institute of Cost and Works Accountants, Final.*)

22. The managing director of a company engaged on the manufacture of large engines wishes to compare week by week the progressive cost of the work in progress and particularly to ascertain how the actual cost in labour, materials and overheads is coming out in comparison with the estimated cost under each heading. Draw up a specimen ruling of a suitable Progressive Cost Book and insert some appropriate figures.

(*Institute of Cost and Works Accountants, Final.*)

23. From the undermentioned particulars, prepare a Cost Sheet of the Northern Brickworks Ltd., indicating cost and profit per 1,000 bricks—

Wages (Claygetting, Machines, Drying, Setting, Burning, Drawing, Sorting, Loading), £7,500.

Coal, 5,000 tons at 15s. per ton.

Royalties at 1s. 6d. per 1,000 bricks made.

Depreciation of Plant and Machinery, 10 per cent (Capital outlay of £15,000).

Removal of Overburden at 1s. per 1,000 bricks.

Works Oncost, 10 per cent of Wages and Coal.

Office Oncost, 2½ per cent of Wages and Coal.

Bricks made, 10,152,284 (allow for waste 1½ per cent of output).

Bricks sold, 8,000,000 at 40s. per 1,000.

Stock of Bricks, 1st January, 2,000,000 at 30s. per 1,000.

Stock of Bricks, 31st December, 4,000,000 at 30s. per 1,000.

(*Society of Incorporated Accountants and Auditors, Final.*)

24. From the following details, prepare a Statement of Cost of a motor-cycle saddle—

	£ s. d.	
The average cost of a hide is		£15
The proportion not available for saddles (due to flaws in the skin) is		40%
The amount of such wastage recovered by use in other departments is		£2
The number of saddles cut from a hide is		30
Labour Costs—per hide		
Dressing	2 3	
Cutting	1 9	
Shaping	5 0	
Metal Fittings (for 100 saddles)	10 16 8	

(*International Accountants' and Executives' Corporation, Final.*)

25. The following figures relate to a printing works for a year—

	£
Total Sales	40,000
Materials used	6,900
Labour	15,000
Rent, Rates and Water	650
Power	255
Lighting and Heating	310
Repairs to Machinery	490
Plant Depreciation at 7½% per annum	720
Other Overhead Charges	10,000

Included in the Plant are four Linotype machines occupying one-sixth of the total floor area. They cost £2,000 two years ago, and it is estimated that their scrap value in twelve years' time will not exceed £200.

You are asked to work out a machine-hour rate, assuming any further details you may consider necessary.

(*Society of Incorporated Accountants and Auditors, Inter.*)

26. A factory is engaged in the production of a chemical *X*, and in the course of manufacture a by-product *Y* is produced which, after a separate process, has a commercial value. For

the month of September, 1934, the following are the summarized costing data—

	Joint Expenses	*Separate Expenses*		
		X	*Y*	*Total*
	£	£	£	£
Materials . . .	1,920	736	18	2,674
Labour . . .	1,170	768	275	2,213
Oncost . . .	345	150	49	544
	£3,435	£1,654	£342	£5,431

The output for the month was 142 tons of *X* and 49 tons of *Y*, and the selling price of *Y* averaged £28 per ton.

Assuming that the profit on *Y* is estimated at 25 per cent of the selling price, you are required to calculate the cost of *X* per ton, and to allocate this as between material, labour and oncost respectively on what seems to you the fairest basis.

(Incorporated Secretaries Association, Final.)

SOME USEFUL CONSTANTS AND GENERAL MEMORANDA

Weight.

1 ton = 2240 lb. = 1016·056 kilograms
1 cwt. = 112 lb. = 50·8028 kilograms
1 pint of water weighs 20 oz.
1 gallon ,, ,, 10 lb.
1 kilogram = 2·2046 lb.
1 cubic cm. of water weighs 0·0353 oz. or 1 gramme
1 tonne (Metric) = 1000 kilograms
1 lb. = 0·4535 kilograms

Length.

1 mile = 1760 yards = 5280 feet
1 metre = 39·37 inches
1 yard = 0·9144 metres
22 yards = 1 chain
1 chain = 100 links
1 link = 7·92 inches
1 furlong = 220 yards

Area.

1 acre = 4840 sq. yd.
1 sq. mile = 640 acres
1 sq. yard = 0·8361 sq. metres
1 acre = 404·672 sq. metres
1 sq. inch = 6·45 sq. cm.
1 sq. chain = 484 sq. yd.
10 sq. chains = 1 acre

Capacity.

8 pints = 1 gallon = 4·543 litres
1 litre = 1000 cubic cm.
1 litre = 1·761 pts.
1 pint = 0·568 litres
11 gallons = 50 litres

Paper.

480 sheets = 1 ream
20 quires = 1 ream
1 quire = 24 sheets

General.

1 score = 20 units
1 gross = 144 units
88 ft. per sec. = 60 m.p.h.

General—(*contd.*)

Area of triangle

$$= \frac{\text{Length of base}}{2} \times \text{perp. ht.}$$

Area of circle = square of radius × pi (3·1416)

$$\text{Area of cone} = \frac{\text{circumference of base}}{2} \times \text{slant ht.}$$

Circumference of circle = 2 (radius) × pi
Area of rectangle = length × breadth
10s. = 0·5 of £1
7s. 6d. = 0·375 ,,
5s. = 0·25 ,,
4s. = 0·2 ,,
3s. 6d. = 0·175 ,,
3s. = 0·150 ,,
2s. 6d. = 0·125 ,,
2s. = 0·100 ,,
1s. = 0·050 ,,
6d. = 0·025 ,,
3d. = 0·0125 ,,
1d. = 0·004 (approx.)

5% = 1s. in the £
3¾% = 9d. ,, ,,
2½% = 6d. ,, ,,
1¼% = 3d. ,, ,,

of £1, $\frac{1}{32}$ = 7½d.
$\frac{1}{16}$ = 1s. 3d.
$\frac{1}{8}$ = 2s. 6d.
$\frac{1}{3}$ = 6s. 8d.
$\frac{3}{8}$ = 7s. 6d.
$\frac{5}{8}$ = 12s. 6d.
$\frac{2}{3}$ = 13s. 4d.
$\frac{13}{16}$ = 16s. 3d.
$\frac{15}{16}$ = 18s. 9d.

8s. 4d. = 100 pence
16s. 8d. = 200 pence
£4 3s. 4d. = 1000 pence
£1 = 240 pence = 960 farthings

£1000 per year = £83 6s. 8d. per month
900 ,, = £75 ,,
800 ,, = £66 13s. 4d. ,,
700 ,, = £58 6s. 8d. ,,
600 ,, = £50 ,,
500 ,, = £41 13s. 4d. ,,
400 ,, = £33 6s. 8d. ,,

General—(*contd.*)

£300 per year = £25 per month
200 ,, = £16 13s. 4d. ,,
100 ,, = £8 6s. 8d. ,,
90 ,, = £7 10s. ,,
80 ,, = £6 13s. 4d. ,,
70 ,, = £5 16s. 8d. ,,
60 ,, = £5 ,,
50 ,, = £4 3s. 4d. ,,
40 ,, = £3 6s. 8d. ,,
30 ,, = £2 10s. ,,
20 ,, = £1 13s. 4d. ,,
10 ,, = 16s. 8d. ,,
9 ,, = 15s. ,,
8 ,, = 13s. 4d. ,,
7 ,, = 11s. 8d. ,,
6 ,, = 10s. ,,
5 ,, = 8s. 4d. ,,
4 ,, = 6s. 8d. ,,
3 ,, = 5s. ,,
2 ,, = 3s. 4d. ,,
1 ,, = 1s. 8d. ,,
10s. ,, = 10d. ,,

To obtain the gross amount from which income tax has been deducted—

If the rate of tax is—

8s. 6d. in the £, add to the net amount $\frac{17}{23}$ thereof
7s. 6d. ,, ,, ,, $\frac{3}{5}$,,
6s. ,, ,, ,, $\frac{3}{7}$,,
5s. 6d. ,, ,, ,, $\frac{11}{29}$,,
5s. ,, ,, ,, $\frac{1}{3}$,,

Example. If the Net amount after deducting tax at 8s. 6d. in the £ is £47 10s. 8d., the gross amount is obtained by adding $\frac{17}{23}$ of £47 10s. 8d. = £35 2s. 8d., giving £82 13s. 4d.

To obtain a gross profit equivalent to

5 % of the Selling Price, add $5\frac{5}{19}$% to the Cost Price
$7\frac{1}{2}$% ,, ,, $8\frac{4}{37}$% ,, ,,
10 % ,, ,, $11\frac{1}{9}$ % ,, ,,
$12\frac{1}{2}$% ,, ,, $14\frac{2}{7}$ % ,, ,,
15 % ,, ,, $17\frac{11}{17}$% ,, ,,
$17\frac{1}{2}$% ,, ,, $21\frac{7}{33}$% ,, ,,
20 % ,, ,, 25 % ,, ,,
$22\frac{1}{2}$% ,, ,, $29\frac{1}{31}$% ,, ,,
25 % ,, ,, $33\frac{1}{3}$ % ,, ,,
$27\frac{1}{2}$% ,, ,, $37\frac{27}{29}$% ,, ,,
30 % ,, ,, $42\frac{6}{7}$ % ,, ,,
$33\frac{1}{3}$% ,, ,, 50 % ,, ,,
40 % ,, ,, $66\frac{2}{3}$ % ,, ,,

INDEX

ADMINISTRATION costs, 117
Advertising, 125, 158, 248
Agencies, 125
Analysis, importance of, 10
Assembling material and labour details, 70
Asset revaluation, 231
Audit and accountancy fees, 131
—— of cost accounts, programme for, 258

BAD debts, 126
Bank interest and charges, 127
Bin Card, 27 *et seq.*
Bonus systems, wages, 49
Breakdown report, 79, 80
Budget, checks on the, 174
——, example of, 168
——, preparation of, 172
——, use of, 165 *et seq.*
Burden, 15

CALCULATING machines, 264
Capital employed, interest on, 235
Cash discounts, 126
Catalogues, outlay on, 248
Charts, use of, 222
Commissions, 124, 125
Component costs, 88, 90
Components of cost, 14
Comptometer, the, 263
Consequential loss insurance, 119, 253
Constituents of cost, 17
Consumable stores, 97, 105
Contract costs defined, 12
Control of stores, 39
Cost accounting, definition of, 8
—— card, 90, 112
——, components of, 14
——, constituents of, 17
——, definition of, 14
——, factory, 15
—— finding, definition of, 9
——, labour, 19
—— Ledger, 198
—— Office, the, 117, 190 *et seq.*
——, operation, 88
Cost results, method of presentation, 180
——, simple form of, 15
——, works, 15
Costing, analysis the basis of, 10
—— and double entry, 196, 269
——, definition of, 9
——, mechanical aids to, 262
——, objects of, 9
——, results of, 10
Costs, classes of, 11, 12
——, contract, 12
——, departmental, 12
——, multiple, 12
——, operating, 12
——, process, 12
——, single, 11
——, terminal, 12

DAY work, 45, 55
—— ——, guaranteed minimum, 56
Deductions from wages, 60
Delay report, 80
Delivery expenses, 126
Departmental costs, 12
Depreciation, methods of, computing, 109, 110
—— of plant, 109, 229
——, usual rates, 246
Designs and patterns, 234
Direct labour basis of oncost recovery, 143
Discounts, 126
Distribution expenses, 123
Double entry and costing, 196 *et seq.*, 269 *et seq.*
Drawing Office expenses, 117

EMERSON system, wages bonus, 51
Employees record sheets, 66
Estimating, definition of, 9
Exhibition and show expenses, 127
Experimental work, 106, 248

FACTORY cleaning, 105
—— cost, 15

Factory insurance, 105
—— lighting and heating, 104
—— oncost, 96, 102
—— power, 102
—— rates, 102
—— rent, 102
—— supervision wages, 111
Faulty analysis, effect of, 100
Financing charges, 127, 128
Fines, deducted from wages, 68
Finished goods, 32
Fraud in connexion with wages, 61 *et seq.*
Functions of cost accounting, 7

Gantt system, wages bonus, 50
General labouring, 114
—— Office expenses, 118
—— oncost, 97, 98, 117
Goods inwards, 30
Graphs, subjects suitable for, 227
——, the use of, 222
Group systems of wage payment, 48
Guaranteed daywork minimum, 56

Halsey system, wages bonus, 50
—— Weir system, wages bonus, 50
Hospital contributions, deducted from wages, 60

Idle time, 87, 88, 113
Income tax, 243
Individual hour basis of oncost recovery, 145
Inspection, 81
Installation of Stores Ledger, 41
Insurances, 105, 118, 119
Interest on capital employed, 130, 235 *et seq.*
Inwards vouchers, 30
Issue note, 31

Labour cost, analysis of, 19
—— ——, assembly of detail, 83
—— ——, daywork, 45
—— ——, definition of, 19
—— ——, idle time, 87
—— ——, piecework, 46
—— ——, rate-fixing, 46
—— ——, scrapped work, 111
—— ——, supervision, 111
—— ——, wages abstract, 85
Labour cost, objects of costing in regard to, 21
—— unchargeable, 87
Left overs, after wage pay, 61
Legal costs, 131
Lighting and heating, 104, 118
Loss of profits insurance, 119, 253

Machine accounting in the Cost Office, 262 *et seq.*
—— hour rate, 146
Maintenance of patterns, 108
—— of plant, 105
—— of works fixtures, 106
Management salary, 115, 123
Manufacturing organization, the, 238
Material cost basis of oncost recovery, 144
—— cost, definition of, 17
—— specification, 73
Materials, abstract, 91
——, assembly of details, 82
—— consumed, 18
——, control of, 25
——, leakage of, 18
——, objects of costing in regard to, 19
——, progress, 77
——, recording and control of, 25
—— scrapped, 31, 92, 111, 112
——, stock-keeping, 26
Maximum stock quantity, 29
Minimum stock quantity, 29
Multiple costs, 12

National Insurance, 66
Nominal Ledger, 212

Objects of costing, 9
Oncost, administration and establishment, 23
——, advertising, 125
——, agencies, 125
——, audit and accountancy, 131
——, bad debts, 126
——, bank interest and charges, 127
——, cash discounts, 126
——, cleaning, 105, 121
——, consumable stores, 105
——, Cost Office expenses, 117
——, definition of, 21
——, delivery, 126

Oncost, departmental distribution, 147
——, depreciation, 109, 115, 123
——, direct labour basis of distribution, 143
——, Drawing Office, 117
——, exhibitions, 127
——, factory, 96, 102
——, —— cleaning, 105
——, —— insurance, 105
——, —— lighting and heating, 104
——, —— power, 102
——, —— rates, 102
——, —— rent, 102
——, financing and professional charges, 99
——, general, 23, 97, 98, 117
——, —— labouring, 114
——, —— nature of, 95
——, General Office, 118
——, idle time, 113
——, individual hour basis of distribution, 145
——, insurance, 105, 118, 119
——, legal costs, 131
——, lighting and heating, 104, 118
——, machine hour rate, basis of distribution, 146
——, maintenance of equipment, 121
——, —— of works fixtures, 106
——, management, 115, 123
——, material cost basis of distribution, 144
——, methods of recovery, 133
——, National Insurance, 120
—— overtime, 114
——, patent fees and charges, 116
——, pattern maintenance, 108
——, plant maintenance, 105
——, postages, telegrams, 122
——, prime cost of basis distribution, 142
——, records, use of, 155
——, rent and rates, 102, 118
——, scrapped work, 111
——, selling and distribution, 23, 98, 123
——, show expenses, 127
——, staff salaries, 118
——, stationery, 121
——, storekeeping, 117
——, summary of, 156, 162
——, supervision, 111
Oncost, telephone, 122
——, timekeepers, 117
——, tool replacements, 109
——, travellers' commission, 123, 124
——, —— expenses, 123
——, —— salaries, 123
——, unit basis of distribution, 144
——, welfare, 122
——, works, 96, 102
Operating costs, 12
Operation cost, 88
—— order, 73
Orders, stock, 31
Original records, use of, 44
Overhead, definition of, 14
Overtime, 114

PART cost, 91
—— list, 90
Patent fees and charges, 116
Pattern maintenance, 108
Patterns and designs, 234, 250
Payment of wages, methods of, 45
Percentages, use of, 3
Permanent order numbers, 75
Physical stocktaking, 42
Piecework, 46
—— rates, 46
——, records of, 55
Planning department, 71
Plant depreciation, 109, 229
—— maintenance, 105
—— Register, 110, 229
Pool system of wage payment, 48
Postages, telegrams and telephone, 122
Preparation of budgets, 172
Presentation of cost results, 180
Price lists, outlay on, 248
Pricing of materials, 83
Priestman system, wages bonus, 50
Prime cost basis of oncost recovery, 142
Process costs, 12
Production, definition of, 17
—— programme, need for, 70
—— summary, 176
——, unit of, 11, 91
Professional charges, 127
Profit sharing schemes, 67
Progress department, 77, 81, 93

QUESTIONS, 7, 13, 24, 44, 69, 94, 132, 154, 164, 179, 189,

Questions 195, 221, 228, 237, 242, 254, 261, 268
——set at public examinations, 305

Rate fixing, 46
Recovery of general oncost, 149
—— of oncost, 133, 141, 149
—— of works oncost, 141
Removal expenses, 252
Rent, 102, 118
Repairs and renewals, 244
Requisition, stores, 33, 34, 83
Results of costing, 10
Rowan system, wages bonus, 51

Scrap Cost Card, 112
—— Report, 81
Scrapped materials, 41
—— work, 81, 92 111
Selling cost, 123
Show expenses, 127
Single costs, 11
Staff salaries, 118
Standard description of stores, 27
—— time for fixing rates, 46
Standing order numbers, 74, 88, 113
Stationery, 121
Stock orders, 31, 73, 74
—— Sheets, 43
——, valuation of, 43
—— value, 39
Stocktaking procedure, 42
Stores, Bin Card, 28
——, consumable, 105
——, control of, 39
——, cost of cleaning, 121
——, division of, 25
——, finished, 25
——, importance of, 25, 26
——, inward, 29, 30, 38
——, issue of, 38
——, —— routine, 33, 35
—— Ledger, 35, 41, 83
——, maximum quantities, 29, 37
——, minimum quantities, 29, 37
——, pilferage, 40
——, planning of, 26
—— records, 27
—— repairs and maintenance of equipment, 121
—— requisition, 29, 33
——, rough, 25
——, standard description necessary, 27
Subs, wages, 57
Summary of factory working, 187
Summary of oncost, 156, 162

Terminal costs, 12
Time Book, use of, 54
—— Card, form of, 53
—— occupied, wages paid for, 45
Timekeepers, 117
Tool replacements, 109
—— stores, 233
Tools, inventory of, 233
Trading and Profit and loss accounts, 2, 280
Travellers' expenses, 123

Unchargeable labour, 87
Unclaimed wages, 61
Unit basis of oncost recovery, 144
—— of production, 11, 91

Valuation of stock, 43
—— of work in progress, 44
Viewing section, 81

Wages, abstract, 85, 86
——, advances of, 57
——, bonus on, 49 *et seq.*
——, day workers, 55
——, deductions from, 60
——, factory supervision, 111
—— fines, 68
—— fraud, 61
—— kept in hand, 56
—— left over from pay, 61
——, making up for pay, 55 *et seq.*
——, methods of payment, 45
—— Office, scope of, 45
—— ——, work of, 54 *et seq.*
——, payment of, 59 *et seq.*
—— pay slip, form of, 60
——, pieceworkers, 55
——, routine concerning, 52
—— sheets, making up, 57 *et seq.*
—— Time Book, 54
—— —— Card, 53
Wastage, 93
Welfare cost, 122
Work in progress, 43, 44
Works cost, 15
—— expense, 75
—— oncost, 96, 102
—— ——, methods of recovery, 141
—— Order, 34, 72, 76
—— —— cost, 88
—— —— cost summary, 88, 89
—— —— Office staff, 76